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ASSOCIATION OF BAY AREA GOVERNMENTS

**GUIDE TO
IMPLEMENTATION
TECHNIQUES FOR AIR
AND WATER QUALITY
MANAGEMENT PLANS**



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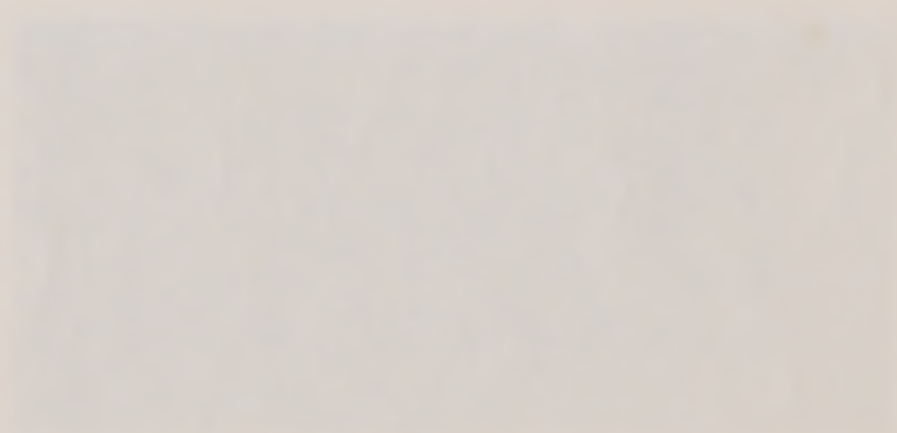
UNIVERSITY OF CALIFORNIA

GUIDE TO IMPLEMENTATION TECHNIQUES FOR AIR AND WATER QUALITY MANAGEMENT PLANS

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for the
ASSOCIATION OF BAY AREA GOVERNMENTS

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INTRODUCTION

Purpose and Scope

The purpose of this guide is to provide the ABAG Environmental Management Task Force and other interested parties with a listing of techniques available to local governments, special districts and regional agencies to implement air and water quality management plans. It includes an assessment of the character of these techniques, their bases in enabling law and significant implications for their application.

The guide is based on a survey of literature in the fields of planning implementation and air and water quality management. The survey focused on existing techniques that are available to government jurisdictions for use in the nine-county San Francisco Bay Area. The techniques include those allowable under existing laws, rules and regulations and primarily comprise regulatory instruments implementable under California enabling law. These are techniques used both directly and indirectly to attain and maintain acceptable levels of air and water quality, including ones that are mandated, or have been proposed for mandate, by the air and water quality implementation programs of the U.S. Environmental Protection Agency and by EPA conditions and grants.

Government Powers and the Listed Techniques

The state empowers its legal subdivisions--cities and counties, special districts and regional agencies--to perform four functions: regulation, acquisition, development and taxation. Actions performed pursuant to these powers affect the activities of numerous other entities, including individuals, corporations and other governmental agencies. Through deliberate planning and implementation, these powers can be used with positive effect to direct activities in accordance with public goals and objectives.

This guide discusses the strategies, or "techniques", that government jurisdictions can use to exercise their powers to implement air and water quality management plans. They primarily include police powers which regional, county, local and special-purpose jurisdictions may use to influence the development of land and the activities conducted thereon. These regulatory techniques are embodied for the most part in such ordinances as zoning and subdivision ordinances, but may also include special-purpose regulations intended to restrict the emission of air and water pollutants. They also comprise other powers, including acquisition and development, which can be used to affect the growth or redevelopment of urban areas.

To keep this guide within manageable bounds, however, does not include the use of acquisition and development powers for purposes other than the regulation of growth and redevelopment nor does it include techniques that affect urban growth, land development, land use and redevelopment by means of taxation policies or incentive pricing. Taxation is, however, given incidental mention in connection with the preservation of open space lands.

It should be noted that most of the techniques listed in this guide have not been used in the past to achieve air and water quality objectives. Moreover, there are significant gaps in the range of techniques; techniques addressing non-point sources of water pollution, for example, are few and have not been widely used. In most cases, application of these techniques to new purposes will require significant adaptations, with careful study being made of the impacts of their implementation on both old and new objectives. In many cases, techniques will have to be conjoined for effective implementation programs.

Organization of Guide

The guide is divided into four major sections. The first three are the government powers not including taxation: regulation, acquisition and development. The fourth contains non-binding review techniques which do not, for the most part, involve exercises of powers granted by the state. Within these sections, techniques are organized by the major groupings characteristic of most municipal and county codes. Regulatory techniques, for example are divided into zoning, specific planning, subdivision regulations, and what has been called for the purposes of this report, non-site-specific regulation of land use activities.

A number of the newer and less widely used techniques combine elements of more conventional techniques and involve more legislative and administrative discretion. These include planned unit development procedures, impact zoning, growth sequence zoning, development timing permits, specific plans, and other administrative and permit procedures. Because they involve combinations of powers, their classification in this guide is frequently arbitrary. Where classification problems arise, the guide provides information for cross-referencing.

The name of each technique is followed by a notation in parentheses including the letters "WQ" and "AQ". The intent is to give the reader an indication of the possible application of the technique to water quality management ("WQ") or air quality management ("AQ") or both. The "Objective" briefly states the potential relationship of the technique to the implementation of air or water quality management, while the "Description" covers the nature of the technique, its basis in law, and where applicable, the agencies likely to employ it. (Redundancy is avoided by covering this last item in the introductory sections when possible.) "Constraints"

discusses the constitutional and legal restrictions that apply to the implementation of the technique, as well as factors such as required studies and planning, scarcity of technical personnel and administrative costs that limit its use.

Standards, Conditions and Criteria

A variety of standards, conditions and criteria may be applied to land use change and development proposals at a number of points in the regulatory processes. Wherever administrative discretion is allowed--such as in the granting of general plan and zoning ordinance amendments; adoption of specific plans; approval of special (conditional use) permits, planned unit development proposals, and tentative and final subdivision maps--conditions and design requirements such as the following may be applied:

- site plan approval
- evaluation of carrying capacity (ecological constraints)
- evaluation of facility (including utility) adequacy
- prohibition of storm sewers
- on-site impoundment of storm water (including rooftop ponding)
- grading controls
- recycling sewage treatment systems
- architectural design for energy conservation and air pollution dispersal
- VMT (vehicle miles traveled) minimization measures such as bus shelters, discount passes, pull-out lanes, preferential parking for carpoolers, adjusted working hours, with or without application of a point system
- reforestation
- protection of wooded areas from fire, disease, insects and weed trees
- energy dissipators to reduce erosion
- narrower pavement widths

For the most part, these conditions are not repeated in the list of techniques.

Role of the EIR

Environmental impact reports have no intrinsic legal authority. The California Environmental Quality Act which requires the preparation of EIRs is therefore not given separate treatment in this guide. EIRs are information documents which can have significant value when administrators and legislative bodies make discretionary decisions. Mitigation measures proposed by an EIR can easily be applied as conditions on the approval of development proposals.

Implementing Agencies

The majority of the techniques in this guide come under the regulatory or "police" power. The state invests most of this power in cities and counties, which are therefore the primary implementing agencies of these techniques. Within the constraints of the constitutional "home rule" provision, the state may, however, delegate regulatory authority to special districts and regional agencies, as has been done with the Coast Commission, air pollution control districts, and the Bay Conservation and Development Commission (BCDC). Many of the regulatory powers of these agencies are of the zoning type although they derive from special enabling legislation rather than the state planning and zoning law. Because of the similarities, they are listed along with the corresponding powers of cities and counties.

Special Districts and County LAFCOs

Special districts are a unique form of government entity with ambiguous regulatory powers. Because they are usually inadequately dealt with in the literature on planning and regulation, they are given special attention in this guide. Although currently unutilized, they have significant potential for performing implementation actions--especially acquisition and development--under air and water quality management plans.

The special district is a legally constituted entity established for the purpose of carrying on specific activities within defined boundaries. The area of a district may cover only a small portion of a county, or it may be multi-county in scope. Depending upon the statutes under which it is formed, its territory may be contiguous or noncontiguous. It may legally be limited to a single function or be permitted to perform a multiplicity of functions. The primary consideration is that within the limits provided by the state constitution and statutes, it should be autonomous and have corporate and continuing life.

Special districts may be created by local authorities or at local initiative depending on the applicable enabling legislation. They in effect constitute a separate level

of government with circumscribed powers that can--though they rarely do--supercede city or county authority in the regulation of land use activity, among other things. Like other levels of government, they are usually empowered to accept grants and contributions, issue bonds, impose charges and taxes, provide services and construct certain improvements, and less commonly to issue permits and regulate land use activity. The following is a partial list of districts which can be formed under state statutes:

- air pollution control districts
- community services districts
- water districts
- drainage districts
- fire protection districts
- improvement districts
- public utility districts
- reclamation districts
- sanitary districts
- resources (or soil) conservation districts
- county maintenance districts
- flood control districts
- sewer maintenance districts
- weed abatement districts
- county sanitation districts
- garbage and refuse disposal districts
- hospital districts
- mosquito abatement districts

- police protection districts
- recreation and park districts
- rapid transit authorities and districts
- county service areas
- county waterworks districts
- highway lighting districts

The resource (formerly "soil") conservation district is one of the few special districts given even minimal power to regulate land use. The enabling legislation states:

The directors (of a resource conservation district) may establish standards of cropping and tillage operations and range practices on private land as a condition to expenditure by the district of district or other funds, or to the doing by the district of any work of any nature, on private lands (Public Resources Code Section 9264).

Other regulatory authority is given to municipal utility districts to regulate waste water and to impose penalties for violation (Public Utilities Code Sections 13570-13576.) Sanitary districts have recently become involved in the imposition of user charges and pretreatment requirements although they do not have the right to deny service to would-be customers except where the current sewerage and treatment capacity is being completely used. In general the limitations on the regulatory powers of special districts is somewhat unclear although they are obviously limited to powers that are directly related to their service functions.

The county local agency formation commissions (LAFCOs) review most of the important types of local governmental structural changes including special district formations, dissolutions, annexations or detachments of territory, consolidations and reorganizations as well as city annexation, incorporations and disincorporations.

The legislative rationale for LAFCOs is to discourage urban sprawl and to insure an orderly formation and development of cities and special districts which supply services to residents of the county and cities. Implicit is the need for planning on which to base its allocative decisions. In this regard LAFCOs are required to initiate studies of existing cities and special districts so as to determine their maximum service areas and capabilities. Thus, LAFCOs are potentially powerful tools to coordinate local government actions in relation to areawide air and water quality management.

Urban Form and Air Pollution

Growth controls usually have the intent of creating more compact forms of urban development with the intent of reducing trip lengths, vehicle miles travelled and pollutant generation. However, it should be noted that the Clean Air Act is directed towards the achievement of ambient air quality standards and not, for the most part, the reduction of total pollutant emissions. (The current debate on non-degradation may result in a change in this area.) Localized ambient air quality levels may actually benefit from a dispersion of urban development since a less dense distribution of trip ends will generate fewer concentrations of pollutants along corridors and at nodes (so-called "hot spots").

Similarly, techniques designed to reduce the total amount of water runoff may actually increase ambient levels of water pollution by reducing the amount of relatively clean diluting water entering the hydrologic system. More intense development (i. e., more impervious land coverage) may actually benefit the achievement of national water quality standards.

Growth strategies which increase open space should, however, have one important, though indirect, impact on both emissions and ambient levels of air pollution. Air quality will indirectly benefit from many of the strategies that are designed to preserve open space and wetlands for other purposes. Vegetation and bodies of water moderate climatic extremes and can function as effective natural air conditioners. Their preservation can therefore conserve energy--especially electricity--and reduce pollution from the burning of fossil fuels while also serving to reoxygenate polluted air.

Growth Control

The subject of growth control has elicited much interest from citizens and professionals in the past few years. Control of the development of the urban fringe can have important impacts on air and water quality management, and for this reason a number of growth control techniques are listed in this guide. (See specifically Techniques 5, 12, 14, 15 and 26. Many of the other techniques can have growth management impacts.)

On the other hand, the literature on growth control includes many regulatory and administrative techniques that could have growth constraining effects but whose primary intent or effect can be the exclusion of certain classes of residential development in part through increases in housing costs. They are given a separate uncategorized listing here for reference purposes only. Note that many of these techniques may also be used for legitimate, non-exclusionary purposes.

- administrative delays
- aesthetic controls
- amenities requirements
- building codes (stringent standards)
- building permits (exacting procedures and limitations on numbers to be issued)
- construction taxes (not necessarily exclusionary; may be used for in lieu dedication, etc.)
- environmental impact reporting (increased cost and time)
- exclusive zoning districts
- height restrictions (limiting density of development and excluding high-rise and multi-family construction)
- historic preservation
- initiative method (no land use changes without voter approval; see case currently before U.S. Supreme Court, City of Eastlake v. Forest City Enterprises, Inc., 324 NE2d 740 (1975))
- large lot zoning
- mandatory housing regulations (required low and moderate income housing in each development thereby making development uneconomical or undesirable)
- maximum number of bedrooms (limit large families)
- minimum floor space
- mobile home limitations
- over-zoning (excess zoning for unlikely uses)
- park and open space requirements (burdensome and excessive requirements)
- point systems (excessive requirements)

● REGULATORY TECHNIQUES

Regulatory techniques involve exercises of the police power. For the most part, they do not entail compensatory action on the part of the government agency applying the regulation.

● PLANNING

1. CONSISTENCY OF GENERAL PLAN AND REGULATORY ACTIONS (AQ and WQ)

Objective. To perform comprehensive planning--with water and air quality as elements --on which to base a consistent set of regulatory actions.

Description. State legislation requires that preparation of a general plan by all counties and cities, whether general law or charter (Government Code Section 65300 et seq.). The plan itself has no direct legal effect and is therefore not strictly speaking a regulatory technique. However, regulatory actions--zoning ordinances, open space zoning ordinances, subdivision and building permits--must be "consistent" with the general plan. "Consistency" has been interpreted to mean that land uses must be compatible with the objectives, policies, general land uses and programs specified in the plan.

Water and air quality issues can be addressed in the required conservation and open space elements and indirectly considered in the land use element. Regulatory actions that are consistent with these plans should have some effect on the accomplishment of water and air quality objectives but they may tend to be piecemeal and at best incremental in their effect. To date, emphasis has been placed on the consistency of the mapped land uses of the general plan and zoning ordinance (using, for example, what has been termed a land use compatibility matrix), with inadequate attention paid to the possible application of the consistency requirement to the objectives and policy of the plans and the increasing number of discretionary actions jurisdictions engage in. Some initial moves have been made to incorporate by reference provisions of the general plan as decision criteria in the handling of special permits and other conditional approvals.

Constraints. The local general plan should follow the lead of the regional "208" and Air Quality Maintenance plans, since most planning for air and water quality is more appropriately performed at the regional level. Air and water quality objectives and policies must be explicitly addressed in the plan, which has not been done heretofore. Methodologies must be developed to insure consistency between plan policies and regulatory actions building on the concept of the compatibility matrix.

● ZONING

Zoning is the tool most frequently employed to regulate the use of privately owned land. As an expression of the police power, zoning must be used to promote "the public health, safety and general welfare" within very broad limits. The power to zone is delegated by the state to cities and counties through enabling legislation (Government Code Section 65800 et seq.) and the state constitution.

The state zoning legislation governs the activities of general law cities. Although charter cities are not subject to the restrictions of the enabling laws in most respects, many local jurisdictions have incorporated the state statutes into their charters. The language of the state zoning law is quite broad and expressly states the legislature's intention "to provide only a minimum of limitation in order that counties and cities may exercise the maximum degree of control over local zoning matters."

The two primary aspects of zoning are use zoning and physical form/siting zoning. The latter incorporates the control of the density and intensity of development as well as setbacks, offstreet parking and loading, etc. A third aspect is zoning procedures.

● Use Zoning

Use zoning regulates the use of land and buildings by restricting areas within their jurisdiction for industrial, business, residential, agricultural and other purposes. While the regulation of one type of zone may differ from other types of zones, "all such regulations shall be uniform for each class or kind of building or use of land throughout each zone." However, this requirement does not demand strict uniformity in all cases, since differences between parcels of land may justify different treatment.

Some regulatory techniques that come under the zoning powers--buffers and aquifer recharge area regulations, for example--can be applied either by special zone, overlay or special regulation. Because of this fact, overlapping techniques are given a full discussion in the following pages only under Special Zones and are then only mentioned under Overlay Zones and/or General Regulations.

● Ordinance Adoption and Mapping

2. GREATER MIXTURE OF LAND USES WITHIN ZONES (AQ)

Objective. Integrate land uses within zones to reduce vehicle miles traveled and resulting air pollutant emissions.

Description. Currently preferred zoning methodologies (those that use "exclusive" zones rather than "cumulative" zones) limit the range of land uses within each zone, thereby requiring more trips between zones to get needed services. More integrated zones--such as primarily residential areas with convenience shopping permitted--could have the effect of reducing vehicle miles traveled and resulting air pollutant emissions.

Constraints. In most cases, complete ordinance revision would be required. Studies must re-examine the basic assumptions of zoning concerning compatible land uses.

3. SMALL ZONING DISTRICTS (AQ)

Objective. To map smaller zones to achieve a greater mix of land uses in each unit area, thereby reducing trip lengths and air pollutant generation.

Description. Current zoning accommodates major development by designation of large tracts of land for single uses. Smaller tracts with varied uses (or at least small non-residential zones interspersed within residential zones) could bring trip ends closer together, thereby reducing trip lengths and air pollutant generation.

Constraints. Since the zoning ordinance must be consistent with the general plan, more detailed planning is required to implement this technique. Plan policies must at least specify the need to integrate land uses to make up for the inevitable heavy-handedness of the general plan map.

4. MAPPING OF MORE DENSE LAND USES (AQ)

Objective. To concentrate development to reduce trip lengths and air pollution generation and to reduce encroachment on valuable open space lands.

Description. This technique is allied with the previous two, in that it proposes more dense development patterns to reduce necessary trip lengths. At the time of mapping of zoning districts, higher density zones are used more liberally and larger fringe areas are retained in open space or at very low density.

Constraints. See discussion in Introduction of the relationship of development density to gross pollutant emissions and ambient air quality (Urban Form and Air Pollution).

● Special Zones

Special zones are like traditional zoning districts except that uses are permitted in them in accordance with environmental characteristics of the land and not only their compatibility with adjacent land uses. The special zone has special restrictions that apply to all land uses within the zone and is generally employed where information on the nature and boundaries of the environmental condition of concern is largely complete.

5. GROWTH SEQUENCE ZONING (AQ and possibly WQ)

Objective. To control the timing and location of growth to promote desirable forms of urban development (related to vehicle travel and pollutant generation) and to deflect growth from sensitive watershed and aquifer recharge areas.

Description. Growth sequence zoning, also called the "tiered zoning district", divides an urban area into districts of immediate urbanization, near-term urbanization, reserve, long-term reserve, etc. It can be used in conjunction with other regulatory techniques to apply different development constraints in different areas. The availability of public services is the primary criterion used in decisions about making reserve areas available for development. As with other growth controls, this technique is most useful in the promotion of compact urban development patterns, with the intent of reducing trip lengths, vehicle miles traveled and pollutant generation. It could have secondary value as a means of diverting growth from open space areas with potential runoff, erosion, and other water quality related problems. With appropriate enabling legislation (such as the proposed Bay Area Planning Agency), the technique could be applied at the regional scale to allocate growth for purposes of air quality control. The agency would have to have the power to plan land use distributions throughout the Bay Region.

Constraints. Implementation problems are sizable, including the necessity for significant amounts of data upon which to base the zoning and the comprehensibility of a totally new set of zones. However, where the criteria for the mapping are sound and explicit and where the locational information on the growth indicators (e.g., public services, hazards, socio-economic composition and natural resources) is abundant, this approach to growth control may have the best long-term potential for meeting the wide range of political, legal and procedural growth management demands.

6. CONSERVATION ZONING (WQ and possibly AQ)

Objective. Limit development in areas of fragile natural values and unique characteristics. Especially applicable to areas of high runoff and erosion potential

as well as aquifer recharge areas, but also useful in air pollution receptor areas.

Description. Conservation zoning, also called "open space zoning", encompasses a variety of special zoning techniques suited to different environmental conditions. The aquifer recharge area is used where surface water is a significant contributor to groundwater. It usually restricts density and impervious groundcover, requires transport of effluents away from the area or controls private sewer systems including septic tanks, and bans feedlots, dumps, pit privies, cesspools and injection wells. Another example of the technique is the aquatic preserve or wetland conservancy district in which uses are restricted; selling, filling and dredging is limited; density transfers are permitted (see Density Regulations below); buffers between land uses and sensitive edges are required; and runoff and erosion/sedimentation controls are required. A model woodland protection district which would be used to control logging practices and reduce runoff and erosion has been proposed by Oakland County, Michigan, but has not been adopted.

Constraints. Data needs are the most substantial of any technique in this guide. Insufficiently researched and poorly designed regulations may be subject to serious legal challenge.

7. AIR ZONING AND EMISSION DENSITY ZONING (AQ)

Objective. Restrict air pollution sources in areas of excessive ambient pollutant levels.

Description. Both air zoning and emission density zoning restrict pollution in areas of excessive air pollution. Air zoning usually implies a total prohibition on new polluting uses in impacted areas, while emission density zoning permits certain classes of activities based on an evaluation of their pollution characteristics. Emission density zoning is distinguished from emission density limitations and performance standards (see below) by the fact that emissions factors of different activities are used as criteria in the creation of use lists for each zone without the factors actually being incorporated into the zoning ordinance. Such criteria would take the form of the density of pollutant emissions per unit area of land.

Constraints. Zonal information is needed on the incidence of excessive pollution levels. Industries and other land uses must be classified in detail by their pollution characteristics.

8. FLOODPLAIN REGULATIONS (WQ)

Objective. To preserve the integrity of stream beds and banks to reduce erosion and sedimentation, and to control uses adjacent to watercourses which may adversely impact stream quality.

Description. Floodplain regulations are those regulations which control development within the area subject to periodic flooding. The most commonly used area is that area subject to a 100-year flood (a flood which could be expected to occur on the average of once every 100 years). The most common floodplain regulation is floodplain zoning, although other types of regulations such as building codes could also be used.

Among the purposes of floodplain zoning are the reduction of potential damage to property, reduction of potential harm to people, and the reduction of costs of rescue operations and extraordinary repair and maintenance expenses. Floodplain regulations can also serve the water quality purposes of stream bed and bank preservation, and abutting land use control.

The Cobey-Alquist Flood Plain Management Act (Water Code Sections 8400-8415) provides for local floodplain regulations. However, the regulations provided for are only those associated with a federal flood control project. In spite of this limitation, the act does have wider applicability because its legislative findings and declaration section is very broad. This, together with the open space zoning requirements (Govt. Code Section 65910), authorizes the use of local floodplain regulations which do not meet the requirements of the act.

Interest in floodplain zoning has greatly increased since the enactment of the Flood Disaster Protection Act of 1973 which made the availability of certain federal funding conditional upon participation in the National Flood Insurance Program. This program requires that participating local governments must adopt a floodplain management program which meets certain specified standards.

Most floodplain zoning deals with requirements for floodproofing, requirements for elevating buildings and structures, setbacks from stream banks, and prohibitions upon certain uses. In California practically all development within a floodplain can be prohibited. Local floodplain management can go much beyond that required for participation in the National Flood Insurance Program.

Constraints. The biggest data gathering effort for floodplain zoning is the development of the maps showing the extent and depths of flooding. If the community participates in the Flood Insurance Program, the maps are furnished by the federal government. (These maps should be checked for accuracy by the local government.) Once accurate maps are prepared, floodplain zoning requires no more implementation effort than other zoning ordinances. Elimination of nonconforming uses could consume large amounts of time, however.

9. AGRICULTURAL PRESERVES (WQ and AQ)

Objectives. (1) To preserve open space as a means of directing and confining urban development; and (2) to continue the role of agricultural lands in their direct

environmental functions of reducing runoff and stabilizing soils, as well as dispersing pollutants and reoxygenating polluted air.

Description. Agricultural lands are zoned for exclusive agricultural use with only related accessory facilities permitted. Preservation of agricultural lands is largely dependent on favorable taxation policies that mitigate economic pressures for abandonment of agricultural activity and "premature" urban development. The Williamson Act (Government Code Section 51200 et seq.) and the related provisions for assessment of open space lands at their "use value" (Revenue and Tax Code Sections 421-425) are the main means used in the state for such preservation, although agricultural zoning is frequently used as a means of "holding" land until pressure for development increases. It should be noted that agricultural activity itself is a major contributor to water pollution (it is a primary "non-point source" generating sedimentation and organic and chemical pollution from fertilizers, herbicides, pesticides, etc.) and air pollution (dust, drifting sprays, vehicular emissions) and must therefore be subject to additional controls.

Constraints. Agricultural zoning may be subject to legal attack as "taking without compensation". Compensatory regulations (see below) are required as an adjunct to this technique to insure its success.

10. BUFFERS (WQ and AQ)

Objectives. (1) To separate sources from receptors; and (2) to preserve sensitive edges of watercourses.

Description. Buffers are zoning districts in the form of strips adjacent to sources of pollution or uses that are sensitive to pollution. Air buffers are landscaped areas separating polluting sources such as highways from receptors. Landscaping in air buffers may serve as a reoxygenation agent. For water quality, buffers are established around streams and other bodies of water to protect the structure (banks and bed) of streams and the ability of the water to handle small amounts of pollutants; they can also be used to protect shade trees which prevent thermal pollution. The buffer excludes incompatible uses of land, which may include agriculture with runoff problems. The water buffer is thus similar to floodplain regulation, but can be applied where flooding is not a problem.

Constraints. For most purposes, buffers may be defined as the area within some number of feet of a source or receptor, but for watercourses it may be desirable to study stream characteristics, flooding patterns and so on to determine sensitive areas. Hydrologic studies may be required.

● Overlay Zones

The overlay zone serves the same function as the special zone except that it can be added to an existing zoning ordinance without requiring revision of the zoning ordinance or rezoning. It keeps down the total number of zones (although it does require additional maps to administer) by applying additional restrictions to land uses in the underlying zone.

11. HILLSIDE AND SOIL CONSERVATION REGULATIONS (WQ)

Objective. To regulate the use of steep areas with unstable soils to prevent undue slope instability and erosion as well as excessive runoff.

Description. Hillside and soil conservation regulations restrict the type, intensity, coverage and landscaping of uses in sensitive areas. Three basic regulatory approaches are used: (1) slope-density provisions, which decrease allowable development densities as slope increases; (2) soil-overlay provisions, which assign use and density on the basis of soil characteristics in sloped areas; and (3) the "guiding principles" approach, which is relatively free of precise standards but which emphasizes case-by-case evaluation on the basis of a number of specific policies (see Special Permits, below). These three approaches are frequently supplemented by grading and erosion controls.

Constraints. The design of regulations requires careful analysis of the interrelationships of the elements of runoff and drainage patterns: degree of slope, soil type, vegetative cover, underlying geology, and precipitation pattern; it may therefore involve substantial investment of local resources and administrative manpower. Data needs typically include soil types, topography (degree of slope), geologic hazards, and hydrology.

Hillside and soils regulations require an explicit link to specific health, safety, and welfare concerns to solidify legal defenses. The values to be preserved--protection from mass movement and erosion, excess runoff, and siltation--need to be spelled out in the regulations.

12. HEADWATER AREA REGULATIONS (WQ)

Objective. To limit land alteration and impervious cover in headwater areas of a stream to reduce the total amount of runoff in the stream, to reduce the load on upstream areas, and to shorten the length of the stream that is impacted by urban-level runoff.

Description. The technique is similar to the Hillside and Soil Conservation Regulations (see previous technique) and involves analysis of soil types, topography, geologic hazards, and most importantly, hydrology.

Constraints. Same as Hillside and Soil Conservation Regulations.

OTHER OVERLAY ZONE TECHNIQUES (WQ and AQ)

Some special zone techniques can be adapted as overlay zone techniques. These include buffers and conservation zoning, especially aquifer recharge areas and wetland conservancy districts, which are discussed above.

● Special Permits

The "special permit" or "conditional use permit" allows a use different from that specified in the ordinance as permitted by right, when conditions and criteria prescribed in the ordinance can be satisfied (Government Code Section 65901). Its purpose is to control the number of such uses, insure that the use is compatible with the proposed site and insure that uses with many externalities are properly located. The suitability of the area for the proposed use, rather than hardships due to the uniqueness of the property, must be demonstrated. For example, even though a district is zoned for low density residential use, such projects as a rest home or a boarding house may be permitted by special permit upon a showing that limiting hazards do not exist on a particular site.

The special permit procedure is employed in preference to special zones or overlay zones where information on environmental constraints is incomplete. Special permits will be required in a zone when there is a determination that there is a likelihood that a specific constraint exists. Procedures on the handling of special permit applications vary in different counties and cities. Evaluation may be performed by the planning commission or department, a board of zoning adjustment or zoning appeals, or a zoning administrator, with appeal to the city council or board of supervisors. Permits granted by the zoning administrator may be called "administrative use permits" and may exist in addition to special use permits. The scope of review is more limited involving less discretion and greater adherence to adopted plans and standards. They might be used for smaller projects which would have less potential impact.

If the decision maker on the administrative use permit is the zoning administrator, the administrative use permit becomes a "minor" conditional use permit and would be covered by the same enabling legislation. If the decision maker was the planning director, the administrative use permit would not qualify as a type of conditional

use permit and might be looked upon as being in conflict with the state zoning law and therefore invalid. This problem would not apply to charter cities.

A conditional use permit procedure, if used extensively in a local community, requires a well-trained staff. Review of development proposals is time-consuming and many staff members are not comfortable dealing with the more subjective criteria often found in conditional use permit ordinances.

The special permit procedure may be used to apply special conditions to the development of a parcel based on certain findings on the characteristics of the site. (These are discussed in the Introduction under Standards, Conditions and Criteria.) Courts have permitted very general criteria for the issuance of a use permit. However, there is a requirement that findings be made in a conditional use permit action.

13. DEVELOPMENT TIMING PERMITS (AQ and possibly WQ)

Objective. To control the timing and location of urban development with direct impact on the pattern of land uses and indirect impact on the generation and dispersion of air pollutants.

Description. Under the system of development timing permits, also known as "special development permits", land zoned for residential use is not allowed to be subdivided until the landowner obtains a special permit from the city council or board of supervisors. This permit is granted only if the landowner can show the availability of adequate public services such as sewers, drainage, park sites and roads. Adequacy of service is measured by accumulating points on a scale designated in the ordinance. For example,* 10 percent drainage capacity would earn the developer one point but 100 percent capacity earns five points. A landowner instead of accumulating points could provide the needed services himself, an almost prohibitively expensive undertaking. Or, he could wait for the city to extend and improve public services over an 18-year period under its capital improvement program. Thus, development in a restricted area would be phased as the city is willing and able to extend services. If the capital improvement program is designed to channel development away from sensitive hydrologic areas, this technique could also have utility in the achievement of water quality objectives.

Constraints. As with other growth management techniques, development timing permits raise the constitutional issues of right to travel, due process of law, etc. Nevertheless, the system was upheld by the New York Court of Appeals (highest court) in the well-known case of Golden v. Planning Board of Ramapo, 285 N.E. 2d (1972).

The implementation constraints applicable to special permits in general (see introduction to this section) apply here as well.

*Ramapo "Residential Development Use" zoning ordinance

14. GROWTH MANAGEMENT QUOTA SYSTEM (AQ and WQ)

Objectives. (1) To restrict residential growth to reduce increases in vehicle travel and pollutant generation; and (2) to insure development design and impacts consistent with policies for water and air quality.

Description. The implementing agency limits the number of new residents or dwelling units which its jurisdiction may accommodate within one year. A special permit is required to develop. As applied in Petaluma, rival plans are evaluated by a reviewing board which rates proposals in terms of public services, quality of design, environmental quality and other factors. The ratings determine precedence up to the point where the annual quota is filled. The design review allows the agency to examine the proposed sewage generation and handling provisions of the proposal, as well as the layout and coverage of the site plan with regard to air pollution generation, buffering and reoxygenation factors, and runoff and erosion potential.

Constraints. The system has been upheld in the federal courts although it is still subject to appeal to the U.S. Supreme Court. Implementation constraints are similar to those of all special permit procedures (see introduction to this section).

15. IMPACT ZONING (AQ and WQ)

Objective. To evaluate development proposals against prescribed impact criteria which may include air and water quality.

Description. Impact zoning involves the application of a "performance" or "operational assessment" approach to anticipated effects and the allowance of corresponding development. The EIR process provides substantial information on impacts which can be evaluated against criteria on the sensitivity of localized environmental systems. It has the potential to be merged into a more refined method for comprehensively estimating environmental, economic and other impacts in quantifiable ways through, in part, the use of cost-benefit analysis. Impact zoning can be viewed as the converse of performance standards. Rather than a limitation being placed on external impacts, these impacts dictate the level of allowable development. The process is allied with the site plan review of the subdivision process. Among the impacts considered can be generation of air and water pollutants and runoff and erosion potential.

Constraints. Constitutional problems may arise if the impact criteria are imprecise and excessively subjective. Denial of development permission may be challenged if the relation to the public health, safety and welfare is unclear. Proposal review is time consuming and complex and may be beyond the capabilities of many local agencies.

16. EMISSION DENSITY LIMITATIONS (AQ)

Objective. To limit or prohibit significant air polluting industries and indirect and line sources in areas of excessive ambient pollution levels.

Description. Emission density limitations are applied to defined areas of air pollution sensitivity by means of the special permit procedure. The probable air pollution impact of certain proposed activities is evaluated against the emission density criteria of the zone (either ambient levels or, in more sophisticated applications, emissions rates). Activities which violate the ambient standard or which emit excessive pollutants are not granted a permit.

The technique differs from emission density zoning (above) in that known classes of polluters are subject to review and are not simply excluded from the zone. The process is suitable to the review of both direct and indirect sources of pollution and could be accommodated to the proposed non-degradation procedures of the Clean Air Act. The EIR is a good source of information on probable impact.

Constraints. Staff needs--both personnel and expertise--for the implementation of this technique are somewhat greater than for emission density zoning, but once decision criteria have been established, ongoing review can be handled by staff. Staff must include experts--engineers or others--versed in pollution projection.

OTHER SPECIAL PERMIT TECHNIQUES

Techniques listed elsewhere in this guide can be adapted for application as special permit procedures. Planned unit development, which is discussed in the section on zoning procedures, can be applied in three ways, two of which involve the issuance of special permits: (1) as a type of floating zone which is not mapped but which areas can be rezoned for; (2) as a special mapped zone in which all uses require a special use permit; or (3) as a use permitted in a zone by special permit. The review procedures are essentially the same.

Hillside and soil conservation regulations can also be applied by special permit. They are discussed above under overlay zones.

● General Regulations

General regulations apply to all zones where defined environmental conditions occur. They are generally applied where no data base exists for the predetermination of areas needing special regulatory attention.

17. PERFORMANCE STANDARDS (WQ and AQ)

Objective. To limit the externalities of land uses, primarily industrial activities, in the form of effluent and emissions restrictions.

Description. Performance standards are applied to zones either in addition to the permitted land uses or in place of them. Uses may be located in such a zone if they can comply with measurable standards for odor, smoke, toxic matter, fire safety, glare, etc. The emission regulations of the Bay Area Air Pollution Control District (BAAPCD) are a form of performance standard, as are the restrictions of the Regional Water Quality Control Board (RWQCB).

The best known performance standards are those that regulate smoke, dust and particular matter, toxic or noxious matter and sulfur oxides in terms of permitted emissions per unit time. A refinement of the air pollutant emission standards is the use of emission density regulations which measure emissions by unit area as well as unit time: this avoids areal concentration of an excessive number of polluting activities, each of which meets a simpler standard by itself. The performance standard approach can be adapted to regulate quantities of runoff from sites as well as the proportion of sediments and other pollutants contained in such runoff.

Constraints. Locally enforced performance standards can conflict with regional, state or federal standards. Where they are used, ordinances must explicitly state that the more restrictive regulations or the regulations of the higher authority should apply. In addition, performance standards require continuous monitoring and enforcement by personnel with high technical ability.

Projection of the probable impacts of a proposed use may fail to correctly forecast a violation of performance standards; it may be difficult for a jurisdiction to prohibit operations by a new land use. Commonly applied performance standards which relate mainly to aesthetic concerns such as odor and smoke, need to be applied to pollutants such as carbon monoxide, oxides of nitrogen and hydrocarbons.

18. GRADING CONTROLS

Objective. To reduce runoff, erosion and sedimentation from construction sites.

Description. The Subdivision Map Act (see Subdivision Regulations, below) requires localities to adopt ordinances providing for proper grading and erosion control. Such regulation may be incorporated into the local subdivision ordinance or the zoning ordinance or may be located in separate legislation. Grading controls are frequently associated with hillside regulations (see Hillside and Soil Conservation Regulations,

above), and where used as an overlay the maximum amount of grading for any given parcel is set beforehand, tying limitations to slope-density provisions. Such controls usually limit the total amount of a site that can be graded.

Most local agencies require a permit before any grading is allowed. Certain light grading activities are excepted. Applicants must submit a grading plan in conjunction with the tentative subdivision map. Information on the physical characteristics of the area and anticipated impacts are included. The grading process to be used is described. Conditions placed on the permit may include timing of grading, on-site detention of runoff with diversion away from graded areas, and seeding, sodding and mulching requirements.

Constraints. Grading controls require review of individual site plans and monitoring of compliance with conditions. They can, however, be easily integrated with other map or site review and planned unit development procedures.

19. TREE CUTTING REGULATIONS (WQ and AQ)

Objective. To preserve trees to reduce runoff, erosion, and thermal pollution of streams and to preserve air buffers.

Description. Tree cutting regulations can be applied alone or in conjunction with fire prevention regulations (as permitted by the Public Resources Code at Section 4117) to preserve trees in their multiple functions of stabilizers of soils, moderator of erosion, shading devices and air buffers. Such regulations usually apply to trees of minimum caliper although in the form of logging regulations, they can apply to the management of whole forest areas. Logging regulations also put restriction on the alteration of groundcover through road construction and logging practices which can also seriously affect erosion and sedimentation problems.

Constraints. Implementation requires permit review and monitoring of logging and other tree cutting activity.

20. DUMPING RESTRICTIONS (WQ and AQ)

Objective. To eliminate air pollution from dumps by prohibition on burning; to reduce pollution of ground and surface water by limitations on dumping locations and practices.

Description. Dumping restrictions are intended to prevent the release of solid waste into the hydrologic system. To this end dumps are channeled into areas that are not sensitive to such effluents; potentially toxic materials are required to be

separated from other garbage for separate handling; and dumping, layering and covering practices are regulated. Burning is prohibited outright to eliminate pollutant--especially particulate--generation.

Constraints. No significant implementation constraints exist. Because many dumping operations are municipally owned or franchised, dumping practices can be controlled directly.

OTHER GENERAL REGULATION TECHNIQUES

Some special zone techniques can be adapted as general regulations by placing uniform controls on actions likely to impact sensitive environment systems within a jurisdiction. These include buffers and aquifer recharge areas.

● Physical Form/Siting Regulations

The previous major section under the heading of zoning has covered techniques that regulate the use of land and buildings. Zoning also regulates a number of development characteristics not directly relating to land use. They include the physical form and siting of structures, lot size, land coverage and land use intensity, as well as setbacks and off-street parking and loading, all of which are discussed in this section. (The enabling legislation is at Government Code Section 65850). Legislative and administrative procedures relating to zoning are dealt with in the next section.

The intent of most form and siting regulations is to increase the ratio of open, pervious surface to enclosed, impervious surface in order to reduce runoff, erosion and sedimentation, and to increase the ability of structures and the vegetative system to disperse and modify air pollution. Form and siting regulation techniques may also affect the siting of structures on large tracts of land so that hydrologic features (such as streams and aquifer recharge areas) are not directly intruded upon and so that associated land uses (residential and commercial for the most part) are located more closely together. The techniques are of two major types, density regulations which deal with the ratio of building units to site area, and intensity regulations which affect the amount of area (especially open space) directly related to each structure.

21. DENSITY REGULATIONS (WQ and AQ)

Objectives. (1) To achieve more dense development patterns to reduce trip lengths and air pollutant generation; and (2) to regulate ground coverage and siting in

areas of potentially excessive runoff and erosion.

Description. As with many of the other techniques in this guide, density regulations can be used to affect trip patterns and air pollution generation. The technique is also applicable to the dispersion of development in pursuit of lower ambient pollution levels. There are at least five distinct systems of density regulation: (1) cluster (or "density") zoning; (2) transfer of development rights (TDR); (3) incentive zoning; (4) slope-density provisions (discussed above under Hill-side and Soil Conservation Regulations); and (5) planned unit development (discussed below under Zoning Procedures). All allow a certain flexibility in the handling of fixed density requirements and involve careful review of development plans.

Under cluster zoning, development permitted in an environmentally sensitive part of a site can be transferred to another part of the site. (Under TDR, development is transferred to another site.) It allows placement of structures anywhere on a site without relation to minimum lot sizes. Site constraints can be more easily accommodated and roadways and other impervious groundcover can be reduced by placing structures closer to one another and to arterial roadways.

Transfer of development rights is a new concept that has been tested under only very controlled circumstances. It involves the differentiation of certain development rights from other property rights, usually by public action, for exchange in the open market or through a public agency. The technique combines exercise of the police power, eminent domain and development functions and can involve taxation policies. It avoids uncompensated reductions in land value which can accompany most exercises of the police power, thereby allowing great control over environmental resources.

Incentive zoning allows density bonuses for provision of certain amenities or design improvements. These can include air and water quality impact mitigation measures. The technique is adaptable to numerous purposes. However, unless it is combined with a detailed point system directed towards specific air and water quality objectives, it may end up being compromised by opposing purposes.

Constraints. Cluster zoning requires some sophisticated planning and zoning, but does not require substantial personnel or expertise. Transfer of development rights, on the other hand, is complex in its conception and requires careful program design and administration to avoid numerous planning and legal difficulties that could frustrate its purposes.

22. INTENSITY REGULATIONS (WQ and AQ)

Objectives. (1) To regulate the ratio of open space to development (and indirectly to regulate density); and (2) to increase the ability of the water and air systems to handle pollutants.

Description. The most straightforward application of intensity regulations is in the form of lot size specifications: small lots to concentrate development for pollutant emissions reasons; large lots for pollutant dispersion and ambient pollutant level reasons; building spacing and height-distance relationships to increase landscaped open space; and floor-area and open space ratios (including impervious surface ratios and landscaped space ratios) also to increase landscaped open space, to increase the ability of the air system to handle pollutants and the ability of the water system to generate less undesirable runoff and erosion, and to recharge aquifers.

Lot size specifications have usually required minimum lot sizes per dwelling unit or structure in order to reduce density and increase open space. Much less rarely used are maximum lot sizes to encourage more density development and clustering of structures. (Intensity regulations apply only to the required lot area per building site and do not preclude retention of portions of a tract in open space.

Minimum spacing between buildings and height-distance relationships (more space between taller buildings), though usually used to increase the light and air reaching required windows, can also increase impervious and/or landscaped surfaces increasing infiltration of water and can aid reoxygenation of air pollutants. The floor-area ratio (the maximum floor area permitted per square foot of lot area) more directly relates structural coverage to uncovered lot area, though it provides only minimal incentive to build at greater densities.

The open space ratio is a more direct means to the same objectives: each building, dwelling unit, room, or square foot of floor area is required to have a corresponding proportion of unsurfaced groundspace on the same lot. In some applications, the open space can be provided elsewhere on the development site. All or part of the open area may be required to be landscaped, in which case there is a landscaped area ratio; impervious surfaces may be limited with a maximum ratio applied.

Constraints. Lot size zoning is crude and easily applied, but may ignore important differences between sites. Building spacing because it already exists in most zoning ordinances (though it usually is only applied to buildings on a single site) can be easily adapted to the new purpose although its effect is at best indirect. Open space and other ratios, on the other hand, are the most direct and powerful intensity regulation; with careful study--which is more costly in terms of ordinance preparation but probably not implementation--standards can be varied from zone to zone, thereby permitting greater attention to local conditions.

23. SETBACKS (WQ and AQ)

Objective. To provide open space and buffering from pollutant sources and sensitive receptors.

Description. Setback regulations usually define areas at the perimeter of lots which cannot contain structures except for accessory uses in some cases. With appropriate landscaping, setback areas (or "yards") can serve the multiple functions appropriate to such open space (see Landscaping Requirements, below). Setback regulations can also be used to establish buffers around land features that are sensitive to pollutants--streams and other bodies of water--as well as flood areas and around pollution sources such as highways (see Buffers, above).

Constraints. Standard setback regulations are easily designed and enforced. Those used for buffering require mapping or at least clear definition of sensitive or polluting land features; criteria for limits must be carefully related to the factors being protected, to insure legality.

24. LANDSCAPING REQUIREMENTS (WQ and AQ)

Objective. To increase planted areas for infiltration of water and reoxygenation of air.

Description. In addition to the landscaping area ratio of the intensity regulations (see Technique 22), the zoning ordinance can require landscaping in all required open spaces including yards. Water infiltration and air reoxygenation is aided by planted groundcover.

Constraints. Implementation of this technique is simple. Care should be taken, however, in the specification of acceptable planning. Some introduced plant species when used to landscape slopes may actually result in excess saturation of soils with resulting ground failure and landslides.

25. OFF-STREET PARKING AND LOADING REGULATIONS (AQ and possibly WQ)

Objective. To discourage automobile trips in order to reduce pollutant generation; incidentally to reduce impervious surface coverage and runoff of polluted water.

Description. The off-street parking regulations of most zoning ordinances require minimum numbers of parking spaces for specified land uses. Recent work in parking management (pursuant to the now-suspended EPA requirement for parking management plans) has indicated the utility of parking space maximums as a means of dis-

couraging vehicle trips. (There has been a concomitant realization that vehicle disincentives must be accompanied by transit improvements.) One proposal is for limitations on parking spaces only where transit service is available: as the transit system expands, other parking spaces could be eliminated either by revocation of special permits or through amortization of nonconforming uses.

Runoff from streets and parking areas carries a significant amount of the so-called non-point source pollutants entering the water system. Litter, dirt and dust, de-icing chemicals and automotive fuel and lubricant spills are dislodged from asphalt and concrete surfaces and carried off by stormwater. Parking regulations can require sweeping of such surfaces and demand installation of catch-basins and treatment facilities to prevent the entrance of such pollutants in to the water system.

Constraints. Off-street parking requirements and related improvement standards are an accepted part of zoning provisions. Once standards and regulations are established, little administrative attention is required except as a normal part of the development review process.

● Procedures

Many zoning procedures involve discretionary actions which allow evaluation of project impacts on water and air quality. Procedures also permit significant leverage in the (at least) temporary control of growth. Such growth control can be used to channel urban development into efficient patterns that are sensitive to environmental constraints. Interim growth control can also be useful at a smaller scale when, for instance, sewage treatment capacities are being upgraded to meet effluent requirements and increased demand.

26. TEMPORARY MORATORIA ON DEVELOPMENT (AQ and WQ)

Objective. To slow or temporarily halt growth while comprehensive planning is performed.

Description. Temporary moratoria on development have been used to help localities withstand the secondary environmental effects of uncontrolled growth. Interim zoning, discussed in the next paragraph, is the most familiar moratorium technique, but cities and counties also have the power to suspend the granting of building permits for residential construction until certain criteria for the provision of environmental services are met. Such criteria include sewage treatment facilities that meet population demand and Regional Water Quality Control Board (RWQCD) effluent standards, sufficient drinking water of good quality, and schools that are not over-

crowded or that do not use double sessions.

Interim zoning is temporary zoning enacted during the preparation of a general plan or an element thereof for the purpose of preventing development which might defeat the ultimate execution of the plan. Very restrictive regulations are permitted because the regulations are not permanent and because the courts recognize that adequate time is required for the preparation of local plans. Virtually all uses can be prohibited.

Constraints. There are several legal questions raised by moratoria that are conditioned on the adequacy of public facilities. A number of systems that have been tried in the Bay Area are now in various stages of litigation.

On the other hand, interim zoning is authorized by Government Code Section 65858. The statute prescribes the procedures which must be followed and the maximum length of time the interim zoning can be in effect. Charter cities are not bound by these provisions and could adopt interim zoning unless so prohibited by their charters. The courts would then probably use a standard of reasonableness in ruling on the maximum time an interim zone may be in effect. To be safe, a charter city should not exceed the time limit contained in Section 65858.

California courts are inclined to be very accepting of interim zoning. The city or county should be able to show that it does in fact have a planning program in process or is about to engage in one. As with other types of zoning, interim zoning should not be used as a device to lower the value of the property in anticipation of public purchase. Also, it is better policy to adopt the zone before, not after, applications for building permits.

Moratoria and interim zoning in particular are easy and inexpensive to implement. No background studies or plans need be done.

27. CONTRACT ZONING (WQ and AQ)

Objective. To enable the implementing agency to place restrictions on the development of a site in accordance with water and air quality policies.

Description: Contract zoning is a rezoning in which the applicant for the rezoning agrees to special restrictions on the rezoned property which do not apply to other property located in the same zoning classification. Contract zoning is sometimes called conditional zoning. There have been attempts to distinguish the two but it is probably safest to consider them to be the same. An example of contract zoning would be where the local government agrees to rezone from agricultural to industrial if the landowner dedicates land for a public road.

The purpose of contract zoning is to receive some benefit from the landowner for a rezoning. The local government may place conditions on the rezoning such as those listed in the Introduction under Standards, Conditions and Criteria. The result may be better development or less cost to the local government.

No enabling legislation exists for contract zoning but the courts have said that such legislation is not necessary.

Constraints. Contract zoning involving dedications have been upheld in California. However, the court has said that contract zoning which limits use beyond that permitted elsewhere in the zone would be invalid. The extent which a charter city is bound by this restriction is not clear. Before contract zoning is attempted, case law should be consulted as to the kinds of conditions which can be imposed.

Contract zoning requires no special planning studies or special skills. The city or county counsel should be consulted before it is used.

28. FLOATING ZONES (WQ and AQ)

Objective. To selectively permit special uses or use groups within a jurisdiction in accordance with defined criteria for location and impacts.

Description. A floating zone is similar to a conventional zone except that it is not fixed to any location in the community. The most common example is a planned unit development (PUD) zone (see Technique 29 and discussion of PUD under Special Permits).

The provisions of the floating zone are contained in the zoning ordinance and the zone itself is usually located upon application by the landowner. However, the provisions could be written so that the government would initiate the action to locate the zone.

One purpose of floating zones is to permit specific regulations to be applied to certain sites or areas when it would not be practical to apply the regulations in advance to large areas. Floating zones also may be used to avoid overzoning -- land is zoned for a low or moderate intensity use and is rezoned to a higher intensity use only upon application.

Constraints. No specific enabling legislation exists for floating zones. In order to minimize legal problems, a floating zone should have some standards which must be met before the zone could be located. The only background studies or plans necessary are those to establish the standards for location. Most of the required studies can then be shifted to the landowner. The local government must have the capability to evaluate an application for location of the floating zone.

29. PLANNED UNIT DEVELOPMENT (WQ and AQ)

Objective. To improve site design in accordance with plans for water and air quality by allowance of density bonuses and other development incentives.

Descriptions. A planned unit development (PUD) is a unified development which is excluded from the general setback, yard, and height regulations of the zoning code and thus produces clustering of development. A PUD normally is used for residential uses but may also be used for commercial, industrial, or a combination of uses. A PUD usually results in a common open space area and frequently has commercial and public facilities to serve the residents.

Because it involves wide discretionary authority, approval of PUD applications can be conditioned on design that is sensitive to the localized water and air quality systems. (See Standards, Conditions and Criteria in the Introduction for things that might be required of an applicant.) The integration of land uses also reduces the need to make trips by placing needed services within walking, biking or at worst short driving distance; reduced pollutant generation should result. Negotiations between developer and government are usually handled by the planning department or zoning administrator with approval by the planning commission. The application procedure can usually be carried on concurrent with the subdivision map approval. Required submittals include a preliminary development plan, site analysis, tentative development plan, and final development plan.

No specific enabling legislation exists for PUD but its use has been upheld by California courts.

Constraints. Any legal issues in California concerning PUDs are likely to be with the procedures for establishing the PUD rather than on the validity of the concept. A PUD may be established either by a rezoning or by means of a conditional use permit. A rezoning should be by an ordinance passed by the local legislative body. A conditional use permit procedure must permit little administrative discretion.

A PUD ordinance places most of the burden of planning studies upon the landowner. The ordinance is easy to implement if the planning department has the personnel to review the application.

30. SITE PLAN REVIEW (WQ and AQ)

Objective. To improve site design in accordance with water and air quality plans.

Description. Site plan review, which is similar in most respects to architectural review and environmental review, allows the agency administering the system to review the design and siting of a proposed use to insure that it conforms with adopted

planning policies. It may not, however, allow a use which is not already permitted by right within the zoning district. There are no specific enabling statutes for such review, but they are permitted by Article XI, Section 7 of the state constitution. Site plan, architectural and environmental review techniques are often used in conjunction with the conditional use permit procedure (see Special Permits, above).

Constraints. Site plan review requires a trained staff to evaluate the material submitted to the local government.

31. COMPENSATED REGULATION (WQ and AQ)

Objective. To compensate landowners for very restrictive regulations that may raise charges of a "taking".

Description. There has been a surge of interest in compensation issues as land use controls become more restrictive. This interest comes about because of concerns by some that restrictive regulations may violate the "taking clause" of the constitution; compensated regulations are seen as a way of getting the courts to look more favorably on the issue. Also, many people feel that, although very restrictive regulations may be constitutional, such regulations are unfair as applied.

A technique which has been applied in other states, but apparently not in California, is compensated zoning. Zoning restrictions are placed upon property and the owner is compensated for the loss in value or some portion thereof. This technique has not been used more widely because of the problems of raising the funds for the compensation and because many feel that it would undermine uncompensated zoning.

A system which is not usually thought of as compensated regulation but which has the same effect, is the use of the Williamson Act (see Agricultural Preserves, above). Very restrictive regulations can be placed upon land and the owner can be given a tax benefit which may be substantial depending upon the type of land and its location. The Open-Space Easement Act permits the same type of benefits to the landowner.

Government Code Section 6953 authorizes local governments to lease "development rights" of land. This provides more flexibility in benefit to the landowner than does the preferential tax assessment approach. This same section would permit local government to purchase an option on the development rights.

Compensated regulations have recently been discussed in terms of "windfall/wipeout." A major study on this subject is in progress and should soon be completed. The study will not offer any model ordinances but will offer suggestions for further study by interested agencies. It is probable that many of the new "windfall/wipeout" approaches will require amendments in state law, especially if they involve using the taxing power.

A particular "windfall/wipeout" technique which has received a great deal of attention is the transfer of development or density rights. A better term than development rights would probably be development potential because the former term implies that a landowner has a right to develop his land. This is not universally true; for example, the owner of a marsh does not necessarily have the right to fill and develop that marsh. The technique calls for separating the development potential from the land itself and selling this development potential to someone in an area where development is encouraged. The seller would not be able to develop his land but would receive compensation. This technique has never been successfully applied but it may have a great potential. It is currently being studied in Sonoma County. (Also see comments on development rights in Technique 21, Density Regulations.)

Constraints. A major issue in any compensatory system is determining the amount of compensation. Eminent domain requires compensation based on fair market value and the landowner—advocates of compensatory regulations have been urging the same standard. However, others have been urging that a new standard be developed in which compensation would not be based on loss below highest and best use but rather below some reasonable use.

32. NONCONFORMING USES (WQ and AQ)

Objective. To provide the means to abate land uses that are incompatible with water and air quality plans and zoning objectives.

Description. A nonconforming use is a use which was a lawful use existing on the effective date of the zoning restriction but which is not in conformity with the current zoning regulations. Nonconforming uses include nonconforming buildings and nonconforming uses of buildings and land. Nonconforming use regulations can be very important in the implementation of an effective planning and zoning program.

The objective of these regulations is to eliminate or at least prevent expansion of buildings or uses which do not conform to the current zoning regulations. No specific enabling legislation exists authorizing the elimination of nonconforming uses. However, authority to eliminate them comes from Article XI, Section 7 of the state constitution. The "taking clause" of the state and federal constitutions sets some limits on elimination.

Many zoning ordinances have provisions concerning the expansion of nonconforming uses, their change to another use, the amount of repair or alteration permitted, and prohibitions on reuse after abandonment or destruction. A nonconforming use of land may be terminated immediately. A nonconforming building, or a nonconforming use of a building, on the other hand, cannot be terminated until it has been found

to be a nuisance. The constitution requires that some amortization period be provided. The period can be equal to ordinary economic life but there is still some debate over whether the time period can be shorter than that.

Constraints. The implementation of a nonconforming use program requires no special studies or staff but it does require sufficient personnel to discover nonconforming uses and to monitor them. For these reasons, and because of the unpopularity of large-scale enforcement, the termination provisions of nonconforming use regulations are often not implemented.

● SPECIFIC PLANNING

The specific plan, authorized by Government Code Section 65450 et seq., permits the local planning agency to prepare "specific plans" for the "systematic execution of the general plan" for adoption by the legislative body. (A related provision is found in Streets and Highways Code Sections 740-742 which authorize the use of an "official map" permitting designation of lands for reservation of rights-of-way.) The form of presentation of the specific plan typically is by a map and accompanying text statements.

33. SPECIFIC PLANS (WQ and AQ)

Objective. To promulgate a comprehensive set of regulations for the development of an area in accordance with comprehensive plans.

Description. Despite its name and its authorization by state planning (and not zoning) law, the specific "plan" is regulatory in effect. The specific plan can, and under some interpretations must, deal with a broad range of aspects of control including: use, population density, intensity and building form, public facilities, solid and liquid waste disposal facilities, preservation of flood plains and vegetation of land uses along stream channels which may have a significant effect on fish and wildlife, proposed streets and roads and standards of construction and maintenance, water supply, storm water drainage, standards for the conservation, development and utilization of natural resources, and soil erosion correction measures.

The level of detail of a specific plan varies with the size and type of the specific plan area involved, but usually the plan is suitable and considered appropriate for immediate regulatory application. There has been relatively limited experience with specific plans other than as a required adjunct of rural subdivisions, in which case they are typically mandated to ensure the provision of needed facilities and services.

However, they do have significant potential for water quality applications, especially where development is proposed in environmentally vulnerable locations, such as along watercourses and in watershed areas. Here the plan could be used to provide significant variation in regulation of areas which are highly vulnerable, and/or attractive to, urbanization whose water-relatedness translates easily into residential amenity. The objectives of the specific plan are to carry out the general plan and to achieve a sound private development, but it has been used also to ensure that counterpart or related public agencies are influenced directly.

Constraints. There are many significant legal and constitutional issues related to the specific plan. One of the most important is the significant potential for detailed variation allowable within small areas. For instance, in some areas it may be possible to entirely prohibit development in vulnerable natural resource portions of a specific planning area, while giving enormous latitude for development in an immediately adjacent area. Occasionally, to avoid this problem, some development permission is allocated in a roughly equitable manner to assure that all owners can achieve some return on their lands. Of course, the courts have generally allowed uneven treatment if the regulatory proposal is predicated on sound planning policy.

Another issue is the extent to which the specific plan can supercede or supplement underlying zoning. An argument can be made that the requirement for "consistency" of zoning with the general plan indicates that a specific plan would not replace zoning, but would merely supplement it.

To avoid some of these constitutional and legal constraints, there is often an attempt to assemble lands and amalgamate parcels. Hence, there may be use of the specific plan in conjunction with procedures to achieve land assembly and consolidation through use of eminent domain, non-profit development corporations, etc.

There is a significant work-load potential involved in preparing specific plans, although it may be possible to transfer this burden to the private owner. A major planning implication is that there must be studies in substantial depth to translate either the general plan or other subjurisdictional plans into the specific plan (given the fact that such comprehensive plans are not usually intended to provide a basis for immediate regulation). Broader plans will have to be translated in some way to make them more immediately applicable as specific plans, probably with a new three to five-year time frame, rather than the usual 10-20 year horizon. Whenever a comprehensive plan is adopted, there may have to be formulated a counterpart, shorter-range, more immediately applicable plan to provide the basis for the specific plan.

One of the most serious problems with the specific plan being applied to a large area may be the necessity for full public notice over an extremely large area. Given state requirements for actual mail notice when a rezoning is to occur, it is likely that the specific plan also could trigger a similar requirement. Another implementation prob-

lem is the retention of planning initiative in the public agency while avoiding the significant costs involved in preparation of the specific plan. One solution is to designate specific planning areas with criteria within which a specific plan would be essential before any development permission would be granted. The burden for actual preparation would be placed on the landowner who could allow the local agency to prepare it with cost-offsetting payment as is done with EIRs.

● SUBDIVISION REGULATIONS

Subdivision regulation provides local government with substantial control over the siting and design of new developments.

34. SUBDIVISION REGULATIONS (WQ and AQ)

Objective. To regulate the siting and design of new development in accordance with a comprehensive plan for water and air quality.

Description. Subdivision regulations are those regulations which cover the division of land. The purpose is to control the design and improvement of subdivisions. This is accomplished by the requirement that maps of proposed subdivisions be prepared by the subdivider and approved by the local government before subdivided lots may be sold or construction on them commenced.

The California Subdivision Map Act (Govt. Code Sections 66410-66499.58) requires local governments to have a subdivision ordinance. Certain provisions are required while others are left to the discretion of the local government.

Any tentative or subdivision map cannot be approved if the local government finds:

- that the map is inconsistent with the general plan and any adopted specific plans; or
- that the site is not physically suitable for the type or density of development; or
- that the design of the subdivision or the proposed improvements are likely to cause substantial environmental damage or substantially and avoidably injure fish or wildlife or their habitat.

The last finding can tie in closely with the EIR process. If an approved EIR showed substantial environmental impacts, it would be inconsistent if the local government

did not make the finding and thereby disapprove the map.

The local government is also required to make a determination whether the subdivision would result in a violation of requirements of the Regional Water Quality Control Board. If it would violate the requirements, the local government may, but is not required to, disapprove the subdivision map. Thus the subdivision procedure could have major importance in the achievement of regional water quality objectives.

There are a number of other provisions of the act which relate to air and water quality (primarily the latter). The local subdivision ordinance must specifically provide for proper grading and erosion control, including the prevention of sedimentation or damage to off-site property (see Technique 18, Grading Controls). Floodplain restrictions may also apply to the subdivision (see Technique 8, Floodplain Regulation), and other restrictions apply to draining and dredging. A soils report is required of certain subdivisions and may be required by the local government for all subdivisions.

Dedications of land may be required for such things as floodplains, drainage facilities, parks, bicycle paths, and other recreational facilities. The payment of fees may be required for the construction of drainage facilities and sewer facilities. The local government may also require the reservation of land for parks, recreational facilities, and other public uses. (The difference between a dedication and a reservation is that the subdivider is compensated for land under reservation.)

The local government may also impose conditions on the design and improvement of the subdivision. These conditions include the installation of drainage and sanitary facilities and utilities. Other improvements might include:

- natural drainage
- impoundment of storm water on-site (e. g., rooftop ponding)
- use of streets as floodways and as a means (by the design of the pattern and grades) to facilitate the storage and routing of storm water flows
- required transport of effluents away from aquifer recharge areas or requirements for package and/or recycling sewage treatment systems
- street widths to reduce impervious cover
- lot widths as a density and intensity control

- setbacks and minimum spacing between buildings to increase open space and air pollution assimilation capacities

Other conditions which might be applied are listed in the Introduction under Standards, Conditions and Criteria. Facilities and utilities may be required to be oversized for the benefit of property not within the subdivision; the subdivider is reimbursed for the oversizing.

Constraints. Most subdivisions require an EIR which should help the local government in administering the subdivision ordinance. If adequate information is available, the biggest problem of local governments is having sufficient trained personnel to evaluate the information.

● NON-SITE-SPECIFIC REGULATION OF LAND USE ACTIVITIES

This section covers techniques that regulate polluting activities outside of the context of the zoning ordinance. These techniques are distinguished from zoning techniques for one of two reasons: (1) they are not related to the development of particular zones or sites and usually are effective over the area of more than one city or county; or (2) they are implemented by special purpose agencies such as air pollution control districts and soil conservation districts which do not have explicit zoning authority but which usually have the technical specialization and expertise to administer complex regulations. For the most part, however, implementation of these techniques is within the powers of local jurisdictions.

35. TECHNOLOGICAL CONTROLS (WQ and AQ)

Objective. To control emissions and effluents at the source.

Description. Regulation may require the installation of technological mechanisms to reduce the production of pollutants or to recapture them before release into the atmosphere or water system. For water quality these may include pretreatment facilities and recycling/recovery systems. Air quality technologies include vapor recovery systems for gas stations, submerged fill pipes, and floating roof tanks, all to minimize evaporative losses. Such requirements are currently applied by the Bay Area Air Pollution Control District (BAAPCD) and the Regional Water Quality Control Board (RWQCB).

Constraints. Monitoring and enforcement require special personnel, but the only major technical expertise required is to develop the controls and test them for their effectiveness.

36. PERFORMANCE STANDARDS AND ENFORCEMENT (WQ and AQ)

Objective. To establish maximum emission and effluent standards which may not be exceeded except under extenuating circumstances; to abate violators of standards.

Description. Performance standards are established for classes of water and air pollutants in terms of either rate of production or ratio of pollutant to total volume (of air or water). Ratios are sometimes measured for defined time periods. (See Performance Standards under Use Zoning for the cruder kinds of performance standards, usually dealing only with particulates, applied by zoning ordinances.)

Pollutant emissions are monitored by self-policing; continuously operating surveillance mechanisms; periodic inspection; or citizen complaint. The administering agency can demand remedial action, and if it has the authority, can impose abatement and penalties. Some agencies, such as the Bay Area Air Pollution Control District (BAAPCD), must bring civil suit for abatement and imposition of penalties with a showing of intent, negligence and sometimes unwillingness to cooperate within a reasonable time.

Constraints. Standards are highly sophisticated and require careful consideration of actual health hazards and economic costs. (Most agencies adopt federal or state standards wholesale.) They should relate to local water and air quality and meteorological conditions. Surveillance and enforcement pose greater implementation difficulties: monitoring equipment is complex and its output is difficult to analyze. Large, highly trained enforcement staffs are necessary.

37. PERMIT SYSTEMS (WQ and AQ)

Objective. To issue permits for construction and operation of pollution sources, permits to be denied or revoked if violations occur.

Description. Permit systems can be applied to a whole range of pollution sources: direct "point" or "stationary" sources; indirect sources; and land use activities. Regulation of direct point (water) or stationary (air) sources is the most common and involves issuance of a permit, first for construction, then for operation. Sewer connections are reviewed in the form of "hook-up" permits which regulate the quantity and quality of effluent discharged into a public sewer system; public and private sewage treatment facilities that discharge directly into area waters are reviewed for the relation of the quantity and quality of their effluent to stream standards.

Indirect source review has not yet been implemented in any significant fashion. Applying only to air pollution, it requires that major traffic generators (highways, stadiums, amusement parks, etc.) be reviewed for their probable pollutant generation and impact on ambient air quality standards.

Land use activities impacting water quality (so-called non-point sources) may require permits. Examples are agricultural activities such as cultivation methods and the application of fertilizers, insecticides, herbicides, etc.; feedlot operations; surface mining; tree harvesting; and dumping. Applicants are required to show compliance with standards, and the granting agency may make conditions on the proposed project or operation. Such conditions may include required monitoring, pre-treatment (water), scrubbers or precipitators (air), and criteria on the siting, design, construction and performance capability of the proposed activity. Permits are usually limited in duration to allow periodic review, and may be revoked for non-compliance with standards or conditions.

Constraints. As with all administrative actions, permit systems require reviewing staff with the technical competence to evaluate complex technological processes. Review of proposed projects and operations involves sophisticated projection systems for probable emissions and impact; some such systems may require the development of complex models (such as dispersion models for air pollution) to properly project impacts on local conditions.

38. PRICING MECHANISMS (WQ and AQ)

Objective. Pricing mechanisms serve either of two purposes: (1) to provide a disincentive to polluting activity by imposing pollutant charges or fines; (2) to provide an incentive to clean up pollution by subsidies.

Description. Pricing mechanisms can reduce pollutant emissions and effluents in two ways: (1) by making pollution too costly to economically continue; or (2) by making installation of cleaning and recycling equipment economically attractive. The latter approach is relatively unfamiliar except in the form of federal and state grants to sewage treatment districts for upgrading their facilities to meet government standards. Tax write-offs are also a form of incentive.

Emission and effluent charges are more familiar proposals. The usual intent is to charge the polluter the cost of the externalities of its activities; conceived narrowly, this means that the polluter should pay all of the costs of treating the waste (applicable particularly to water pollution); conceived broadly, the polluter should absorb all costs, direct and indirect, that his activity imposes on society. The narrower interpretation implies more straightforward measurement and allocation of

payment and is therefore the favored approach. Measuring the costs of air pollution are more difficult, so emissions do not lend themselves especially well to pricing techniques.

Where a polluting activity operates in terms of discrete elements--logging is an example--taxes can be applied which are proportional to the costs of runoff and erosion damage, for example, caused by the operation. Such taxes do not provide an incentive to clean up operations; performance standards and/or regulation with fines are probably more effective.

Constraints. A professional staff of engineers, chemists and possibly economists should be capable of assessing the costs of treatment, allocating costs to users, and further adjusting costs in order to influence the location and concentration of users according to the areawide plan. Billing requires a clerical staff, and adequate sampling, monitoring and metering equipment is needed along with qualified personnel to operate it.

● OTHER REGULATORY TECHNIQUES

Other regulatory techniques--building and health codes in particular--incorporate provisions which can impact air and water quality. Building codes can very indirectly affect air quality through the connection of building design, energy consumption and air pollution from power plants. Health codes restrict the treatment and disposal of sewage which can in turn impact the location of development in addition to avoiding pollution of ground and surface water. Restrictions apply to the use of cesspools and septic tanks and constitute the primary direct restriction on pollution of groundwater. Possible application of health codes to non-point sources is unclear, however. (The regulations of the Regional Water Quality Control Board (RWQCB) apply only to point sources discharging into "navigable" waters.)

● ACQUISITION TECHNIQUES

Acquisition involves the purchase or taking with compensation of property by a government agency for a public purpose.

39. EMINENT DOMAIN (WQ and AQ)

Objective. To obtain lands which could generate major pollution.

Description. Eminent domain is the use of the power vested in public agencies to acquire land without the consent of the owner. The power extends to the acquisition of open space.

Constraints. The state constitution (Article 1, Section 14) provides that "private property shall not be taken or damaged for public use without just compensation." The "public use" criterion is usually met if the land serves a public purpose, even when, as under redevelopment, the acquired land is later disposed to different private owners. Courts have circumvented the disposition problem by severing acquisition from disposition and holding that if the acquisition serves a public purpose, such as removal of blight or land assembly, the public use is served.

Required studies involve establishing the necessity for use of the power on particular sites, usually under the Community Redevelopment Law (Health and Safety Code Section 33000 et seq.). Other problems include initial costs of acquisition, time delays, litigation potential, and the political controversy attendant on widespread use of the power.

40. ADVANCE ACQUISITION (WQ and possibly AQ)

Objective. To acquire property in advance of need for siting of public facilities.

Description. Advance acquisition, often called "land-banking", is the acquisition of land in advance of actual need. Ordinarily, eminent domain is exercised to acquire property a few years before the desired public purpose is to be achieved. However, acquisition within a longer time-frame has been upheld for certain purposes, such as for future public facilities, and it has been given increasingly expanded scope. Advance acquisition could be used at the metropolitan level for environmental protection to assure needed sites for sewage plants (generally an unwelcome neighbor), to phase growth in a logical manner, and to avoid premature development of pollution sources. There is no explicit legislative authorization for the use of this power, which is thus based largely on the eminent domain authority.

Constraints. The same restrictions that apply to eminent domain would be applicable here, with the additional possibility of legal attack based upon the lack of imminence of use of the acquired land.

Substantial study must go into designation of lands needed for the future. Obviously, the costs of advance acquisition are more significant, since the holding costs and the loss of tax returns are correspondingly greater. However, deriving revenue during the interim period by leasing has been permitted.

41. EXCESS CONDEMNATION (WQ and AQ)

Objective. To take more land than is needed for actual development of a major public facility in order to control surrounding land for buffering purposes, among other things.

Description. Excess condemnation is the taking of more land than is needed for actual development of a major facility. The objective is to control lands surrounding such developments. Authority would correspond to the basic eminent domain authority. The state constitution permits the state or any of its counties or cities to acquire land adjacent to certain public works and improvements and to convey the real estate with conditions to protect the environments of public works and to preserve views, appearance, light, air and utility. However, Article 1, Section 14 $\frac{1}{2}$ of the constitution seems to limit use of the power to parcels lying wholly or partly within a distance not to exceed 150 feet from the closest boundary of streets, parkways, etc.

The power of excess condemnation, even if construed narrowly, may be useful for purposes of water quality management, not only for protection of an actual facility, but also for avoidance of severance damages from taking of uneconomically small excess fragments of property. These could then be replatted and sold with planning restrictions imposed on resale. Land retained in public ownership can be landscaped and serve as a buffer between pollution sources and sensitive receptors. Another reason for excess condemnation is to recoup part of the increase in the value of surrounding property resulting from a public facility. This is still a questionable exercise, although judicial acceptance is growing.

Constraints. In addition to the constraints applicable to exercises of eminent domain in general, excess condemnation must respect the 150-foot limitation.

42. ACQUISITION OF LESS-THAN-FEE INTERESTS (WQ and AQ)

Objective. To reduce costs of property acquisition to the fullest extent possible while protecting public interests in the environment.

Description. Government agencies may acquire less-than-full interest in land in order to control certain aspects of its development. Land interests which are less than the entire fee simple include easements, licenses, rights of entry, covenants or other development rights. The most familiar type of less-than-fee interest is the easement, which allows the holder certain limited rights to the use of the land, such as the construction and use of a road or the use of air rights for the placement of power transmission lines. As applied to air and water quality management, the acquiring government agency does not intend to use its rights but only seeks to prevent the landowner from using them. An example of such a right would be construction in a floodplain, aquifer recharge area, or other environmentally sensitive area that is not subject to the police power.

Constraints. There seems to be no severe constitutional limitation on the use of this power, but there are several legal issues involved. One is the question of whether the easement or other interest bought to be condemned is sufficiently specific. Other problems, inherent in the nature of easements, include the necessity of ensuring that the easement is enforceable against future purchasers, which requires that notice must be given through recordation. A change of conditions may terminate an easement, and the doctrine of "merger" extinguishes an easement when it is merged with the fee of which it is a part. Thus, the governmental agency which has an easement and then acquires the fee in the land must be careful to reinstate the easement before selling the land again.

Required studies for the use of easements are significant, since these specific interests must be defined with great care involving a depth of planning. Some authorities declare that the total costs of less-than-fee acquisition, including the costs of surveying, mapping, appraising, negotiating and other administrative expenses, are greater than the cost of acquisition of the entire fee. Another problem is that condemnation of development rights can draw attention to the development potential in an area, leading to overstatement of that potential and inflating land value. On the other hand, the taking of a right to a part of a land parcel may confer a benefit on the remainder, providing some offset in cost.

43. GRADUAL ACQUISITION OF FEE INTERESTS (WQ and AQ)

Objective. To spread the cost of property acquisition over a period of years.

Description. Various means have been utilized or proposed to reduce the costs of acquisition. These include acquiring options to buy, the requirement for notification of proposed development or sale, purchase at the request of landowners, installment purchase, and purchase with sale-back or lease-back.

The option to buy can be used to avoid large, immediate capital outlays with the agency authorized to acquire options for large areas pending implementation of a specific plan.

Another device would require owners to notify an agency whenever they propose to develop or sell their properties, thus giving the agencies the opportunity to make selective acquisitions. Precedents for this approach exist in state law relating to the protection of mapped highways (California Streets and Highways Code, Section 740-742) in which applicants for building permits within areas mapped for future highway acquisition are temporarily refused building permits while the Division of Highways is notified and given the opportunity to condemn the land. Installment purchase enables public agencies to spread costs of acquisition over a period of years, with title retained by the seller as security until the final payment is made. Possession also may be retained so the method can spread payment, permit the occupant to retain economic use--leaving the property on the tax rolls and allowing acquisition at a non-inflated early price. However, installment purchase requires the seller's voluntary assent and there seems to be no particular incentive for this. Purchase with sale-back or lease-back can reduce larger later outlays and ensure development and use in accord with imposed conditions.

Constraints. All of these techniques are of questionable legality in terms of enabling legislation and would have to be undertaken under the general eminent domain authority. Legal issues involved are as yet undetermined because of the lack of attempted use of these approaches. Their use would also raise the questions of public use and just compensation. Required studies would be similar to those above for less-than-fee acquisition with similar problems.

44. COVENANTS RUNNING WITH THE LAND (WQ and AQ)

Objective. To restrict the use of land by inserting agreements into deeds.

Description. Covenants running with the land are agreements concerning the use of land normally imposed by a previous owner upon disposition of land to a new owner. (Government agencies can impose such covenants by buying and then reselling land subject to covenants). When valid, they can be enforced against all subsequent owners, even those with no part in the original agreement. They can be as broad as any contract and deal with very minute details in a relatively permanent manner. Their basis of law is in the common law, which includes very specific requirements relating to relationships among owners. Covenants have been widely used in historic preservation, and could be applied to lands to prevent use incompatible with environmental values.

Constraints. Some of the implementation problems include the fact that the covenants have irregular duration and they can expire after a fixed time as specified in the covenant and then are difficult to renew. Moreover the courts can strike them down upon "change of conditions". Special problems exist under California law concerning their enforceability against subsequent owners. Experience in urban renewal has shown that attendant legal costs have been so great as to discourage their use in preference to reliance on police power regulation.

● GOVERNMENT DEVELOPMENT ACTIONS

Development decisions by localities, special districts and regional agencies can have a significant impact on the timing and location of development. The growth-facilitating impacts of transportation improvements and utility extensions have been apparent for some time, but only in recent years has it been considered possible to manipulate infrastructure to achieve regional development objectives. An important implementation constraint has been the lack of connection between public planning and government development decisions: these are usually handled in different departments with quite different organizational objectives. Where public utilities are provided by special districts or franchised private companies, the connection is even more tenuous since it is not clear that they have the legal right to do anything except provide all the service that is demanded of them. Nevertheless, as the "Ramapo system" shows (see Technique 5, Growth Sequence Zoning), an explicit connection can be made between the expansion of the urban area and capital improvements programming.

At a more modest scale, governmental entities have long been engaged in the construction of public improvements that mitigate the impacts of pollutants. Sewage treatment facilities (dealing with point sources of pollution), flood control facilities, public parking, pedestrian malls and auto-free zones are examples.

45. PROVISION OF INFRASTRUCTURE (AQ and WQ)

Objective. To control the pattern of development in accordance with a development plan to achieve open space, water quality and air quality objectives.

Description. Infrastructure, utilities or public facilities are improvements that individuals cannot provide for themselves except at great cost or with undesirable impacts on adjacent land uses. Service availability affects land values and development decisions: withholding services can slow or stop growth. Greater control is achieved if developers are prohibited from supplying their own services, as when septic tanks and other package sewage treatment facilities are not allowed due to poor soil percolation characteristics, sensitive aquifers or smallness of lots. Although schools, parks, health facilities and libraries could conceivably affect development decisions, the essential services--sewerage and sewage treatment, water and transportation--provide the most control.

Constraints. Conflicting organizational objectives may frustrate the control of development by the provision of public services. Greater control is possible where public service policies are directly related to development objectives; the legality of such an approach is not clear, however. At the very least, restrictions need to be placed on alternative provision of services in order to function as a disincentive to private development decisions.

46. FLOOD CONTROL FACILITIES (WQ)

Objective. Reduce erosion by channeling runoff waters.

Description. Flood control facilities - dams, reservoirs, impoundments, channels, levees and dikes - can eliminate the destructive power of large quantities of storm water within the areas they service. However, they usually increase peak flows which can cause severe damage outside of the system, unless water is diverted to reservoirs and aquifer recharge points.

Preferable in many ways to flood control improvements are on-site runoff containment measures. Some have already been discussed in this guide. Their intent is to maximize the ability of the natural hydrologic system to handle storm water. Costs are reduced and other objectives such as aquifer recharge and erosion prevention are served.

Constraints. Costs and externalities are constraints. Natural control systems should be used as much as possible.

47. AUTO-RELATED DEVELOPMENT DECISIONS (AQ)

Objective. To reduce generation and concentration of air pollutants as well as exposure to high pollution levels by discouraging auto traffic and eliminating it from some areas.

Description. Three primary governmental development areas relate to auto emissions: (1) highways; (2) public parking; and (3) auto-free environments. A decision to build a highway is an implicit acceptance of new pollutant concentrations and possible pollutant generation; non-expansion decisions can reduce these impacts. The provision and pricing of public parking can influence trip making decisions and modal split. Auto-free environments (especially pedestrian malls as permitted by the state Streets and Highways Code at Section 11000 et seq.) can make older central areas more attractive to commercial activity, reduce centrifugal development tendencies which increase trip lengths and undermine transit usage, and reduce the pollutant concentration and exposure levels in high-activity areas.

Constraints. Coordination of activity between agencies--such as planning departments and parking authorities--may be difficult. Automobile disincentives may meet strong political opposition from interests with legitimate concerns about possible adverse economic effects.

● NON-BINDING REVIEW TECHNIQUES

The scope of this report includes review of the powers of regional agencies. True regulatory powers--such as those possessed by BCDC, the Coast Commission and the Bay Area Air Pollution Control District (BAAPCD)--are covered in other sections of this guide. It should be noted that while these agencies can frequently, in practical effect, negate all local planning permits issued within their jurisdictions, they usually cannot institute regionally desirable development over local objections. Other agencies such as ABAG and MTC derive their implementation authority from federal and state requirements for review of project proposals with regional impacts. For the most part, this authority is advisory only. Thus, this section deals with non-binding review techniques for the implementation of water and air quality plans.

48. REGIONAL PLANNING (WQ and AQ)

Objective. To develop regional plans on which to base review of project and program proposals.

Description. Most regional agencies have the power to develop regional plans for land use, transportation, water quality management, or their appropriate functional area. Such plans may incorporate objectives and policies relating to regional development patterns among other things, which can have major impacts on air and water systems.

Constraints. Given the applicable scale, regional planning budgets may tend to be small, thus precluding frequent updating. Because implementation of plans depends largely on the concurrence of constituent governments, regional plans occasionally can be either parochial or nebulous and fail properly to represent regionwide interests. However, increasing recognition of COGs as "sub-state" units are generating broader perspectives.

49. FINANCIAL PLANNING (WQ and AQ)

Objective. To plan the distribution of federal and state funds to local agencies in accordance with regional plans.

Description. The Metropolitan Transportation Commission (MTC) is currently the only regional agency in the Bay Area with major responsibility for "pass-through" of federal and state funds to local agencies. Government Code Section 66512 requires MTC to develop a "financial plan for the regional transportation system." As a component of the regional transportation plan, the financial plan is expected to be

consistent with the overall objectives and policies of the regional plan.

Constraints. "Log-rolling" and other political arrangements may compromise the objectives of some regional plans, although such activities are diminishing.

50. REGIONAL CLEARINGHOUSE REVIEW (WQ and AQ)

Objective. To review and approve applications for federal and state financial assistance by local governments and districts for their compatibility with regional plans before submission to the funding agency.

Description. Circular A-95 of the federal Office of Management and the Budget instituted the regional clearinghouse review process for 140 separate federal grant-in-aid programs. ABAG is the Bay Area's regional clearinghouse, although state legislation has given MTC the power to review proposals for both federal and state aid (Government Code Section 66520). Section 401 of the federal Intergovernmental Cooperation Act of 1970 provides that federal grants-in-aid should be disbursed consistent with state, regional and local planning. The federal government may deny grant funds for a project or program which the regional agency finds to be in conflict with the regional plan. The regional plan thus may be supported by denial of federal subsidies of conflicting projects.

Constraints. It appears that proposed projects need to be consistent only with the plan of the regional clearinghouse, which could itself be in conflict with regional water and air quality plans prepared by other agencies. (ABAG's responsibilities for the preparation of the "208" and Air Quality Maintenance plans should obviate this problem.) Equally problematical is the fact that some regional plans do not have sufficient detail or scope to provide a basis for meaningful review of most grant applications.

51. ENVIRONMENTAL IMPACT ASSESSMENT, REVIEW AND COMMENT (WQ and AQ)

Objective. To review environmental impact reports and statements on projects with regional significance and to make comments thereon in the context of the regional plan.

Description. The California Environmental Quality Act of 1970 (CEQA) requires preparation of an environmental impact report (EIR) for certain activities of state, regional and local governments (Public Resources Code Section 21000 et seq.). CEQA implementation guidelines provide that the responsible agency is to consult

with any organization it believes will be concerned with the environmental effects of the proposed project. Similar consultation and comment procedures involving regional agencies have been implemented through the National Environmental Policy Act of 1969 (NEPA) (46 U.S.C. Section 4321 et seq.). Also, regional planning agencies have new opportunities to influence land use policy decisions through regional plan review procedures articulated by the federal Housing and Community Development Act of 1974.

Constraints. Comments on environmental documents are advisory only, although some recent court decisions are giving them increasing substantive effect.

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Other sources of information are footnoted in the appendix. This bibliography does not repeat citations of federal acts and the state constitution and statutes which are contained in the body of the guide.

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APPENDIX

Legal Issues Raised by Federal and State Constitutions,
Acts and Statutes Relating to Implementation Techniques for
Air and Water Quality Management Plans

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This guide emphasizes the opportunities and constraints to the implementation of air and water quality management plans that are posed by federal and state constitutions, acts and statutes. This appendix elaborates that analysis.

The appendix comprises two sections. The first deals with the powers of the state and its legal subdivisions--cities, counties and special districts. It discusses a variety of constitutional and legal issues related to regulatory techniques and analyzes in some detail certain techniques dealing with the control of growth and the location of significant air pollution sources. These latter elaborate on items in the body of this guide.

The second section is concerned with federal control of the water and air quality management processes. It raises very important questions about the authority of the federal government to require local regulatory action in the absence of state mandates. It also examines the Federal Water Pollution Control Act, the Clean Air Act and their implementation guidelines for indications of the directions the U.S. Environmental Protection Administration feels local government and regional agencies ought to take in implementing regional water and air quality plans.

I. THE POWERS OF THE STATE AND ITS LEGAL SUBDIVISIONS

General Legal Assessment of Land Use and Regulatory Techniques¹

Assuming that active land use and regulatory controls to attain air and water quality will need to be employed, such controls will necessarily test existing concepts of property rights and personal freedoms. Regulations restricting private property rights are constitutionally limited in that private property cannot be "taken" without just compensation. The precise meaning of this taking limitation is the subject of continual debate. Many courts and authors take the position that a private property owner is entitled to some economic return on his investment, while others argue convincingly that "taking" requires an actual physical invasion of the property.² Although the California Supreme Court supports the concept that public entities are not bound to reimburse individuals for losses due to changes in zoning,³ all courts agree that regulations concerning private property must be rationally related to the accomplishment of a permissible police power goal. Such goals include enhancement or protection of the public health, safety, welfare or morals. Typically, zoning ordinances have little difficulty relating to one of these goals.

On the other hand, regulations impinging upon personal freedoms are limited by the due process clause of the Constitution. Again, courts have interpreted this to mean that any regulation restricting personal freedoms must be rationally related to the accomplishment of permissible governmental goals. Typically, the courts have upheld such regulations if any rational relationship can be ascertained.

A third constitutional issue is encountered when persons are treated differently by government through legislation, ordinances, regulations or administrative decisions. Under the equal protection clause of the Constitution courts require a rational reason for differential treatment.

While this discussion over-simplifies the constitutional principles of property and personal rights, the "rational relationship" requirement runs through all of them.⁴ In addition, because the technology related to achieving air and water quality is not capable of predicting with complete accuracy the results of various land use and regulatory strategies, the courts require only a rational relationship rather than an absolute relationship. In summary, the need only be a reasonable belief that a regulation or control measure will result in a net benefit to the public welfare commensurate with the property rights or personal freedoms. As a rule of thumb, the severity of regulation upheld by the courts is compared with the public welfare increase.

In order to maximize the regulatory powers of governmental agencies it becomes important that the public welfare aspects of a particular technique can be demonstrated or measured.

Combining the judicial presumption of administrative validity and the strong expressions of congressional intent that the goals of the Clean Air Act and Federal Water Pollution Control Act be achieved, courts should uphold regulations that can be reasonably demonstrated to effecuate air and water quality objectives.

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1. Batchelder, Bob, Land Use/Transportation Controls for Air Quality. University of San Diego, School of Law, NSF/IREM Project, 1973.
 2. See, Van Alstyne, Taking or Damaging by Police Power: The Search for Inverse Condemnation Criteria, 44 So. Cal. L. Rev. 1, 37 (1971); Sax, Takings, Private Property, and Public Rights, 81 Yale L. J. 149 (1971).
 3. See HFH, Ltd. v. City of Cerritos, (Cal. Supreme Court, L. A. 30382, Nov. 13, 1975).
 4. For a more detailed discussion of these constitutional principles see, Development in Law: Equal Protection, 82, Harv. L. Rev. 1065 (1969).

Implementation of a Growth Strategy.

The complex source and non-degradation regulations under the Clean Air Act and the anti-degradation policy of the FWPCA will require local and regional governments to develop enforceable growth policies. The following regulations represent some of the legally available means for implementing such a growth policy.

1. Moratoria

California has statutorily sanctioned building moratoria with the enactment of Government Code Section 65858 which states:

Sec. 65858. Without following the procedures otherwise required preliminary to the adoption of a zoning ordinance, the legislative body, to protect the public safety, health and welfare, may adopt as an urgency measure an interim ordinance prohibiting any use which may be in conflict with a contemplated zoning proposal which the legislative body, planning commission or the planning department is considering or studying or intends to study within a reasonable time.

Such an urgency measure moratorium may remain in effect for 24 months if adopted after meeting public hearing and notice requirements. An area under heavy construction or development pressures during the last few years may already have used up the allowed increment of air quality deterioration measured from the 1974 baseline.¹ In such areas, selective moratoria could be used to minimize the risks of violating federal regulations and provide time to define local goals.

The judicial reaction to moratoria has been generally favorable in California.² Anticipated adverse effects on either air or water quality are related adequately enough to public health, safety and welfare to qualify under Government Code Section 65858 for such action.

2. Environmentally Sensitive Land-Use Decisions

Discretionary land-use decisions made by local or regional government are frequently subject to statutorily limited discretion. The Coastal Zone Commission is mandated to deny permits if a proposed development will adversely affect the environment.³ Provisions of the Subdivision Map Act mandate denial of a permit to subdivide if specified adverse environmental impacts will result.⁴ Such permit decisions by regional and local agencies could and should reflect air and water quality considerations in their decisions. As long as the public welfare is enhanced by environmentally sensitive ad hoc decisions, only statutes which explicitly remove the discretion and the constitutional limits on regulations restrict its use.

3. Zoning

The use of zoning by local governments to protect and enhance public health, safety, welfare and morals is no longer open to serious challenge. Zoning techniques can be fashioned to enhance air and water quality in a variety of ways. Areas that have serious water or air quality problems could be zoned to exclude high levels of effluents, emissions, or commercial developments. Large-lot residential zoning is residential zoning is frequently utilized to diminish impacts from residential development.

Although the question of whether zoning regulations can be used to achieve open space plans of a region remains unsettled, restrictions which have made land virtually undevelopable have been upheld by the courts.⁵ California has recognized flood plain zoning, intended to protect the public from flooding, as perfectly valid.⁶ Such zoning is valid even though the property owner is unable to place any permanent structures on his property. Zoning restrictions which would attempt to protect air or water quality objectives by restricting private property should be upheld under similar rationale.

4. Phased Growth

A 1972 New York case, Golden v. Planning Board of Ramapo⁷ demonstrated the feasibility and possibilities of using municipal regulations to accomplish phased growth. The town plan was based on a capital budget that anticipated municipal services for outlying areas over an 18-year period. The municipal services included sewers, drainage facilities, parks, public schools, roads and fire services. The availability of each of these services determined the number of points a developer held. However, a developer who did not have sufficient points to develop could pay for the provision of services himself and thereby gain approval to subdivide.

Although the Ramapo plan was based on capital expenditures, there is little doubt that a similar phased development plan could be produced on the basis of air or water quality factors. To provide incentive to potential developers, development ahead of phase could be conditioned on emission control devices, effluent treatment measures, traffic controls or the existence of mass transit facilities, the cost of which would be partially carried by the development.

The concept of a unified phasing plan which would incorporate a variety of factors for solving air and water quality problems produces the added advantage of permitting a variety of regional goals to be accomplished.

1. 1974 Final Regulations for Prevention of Significant Air Quality Deterioration, 39 Fed. Reg. 42510 (1974).

2. See Miller v. Board of Public Works, 195 Cal. 477, 234 p. 381 (1925); Metro Realty v. County of El Dorado, 222 Cal. App. 2d 508; 35 Cal. Rptr. 480 (1963).

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3. California Coastal Zone Conservation Act of 1972, Cal. Pub. Res. Code secs. 27400-27402 (West Supp. 1973).
 4. Cal. Bus. and Prof. Code sec. 11549.5 (West Supp. 1973).
 5. See, Selby v. City of San Bernardino (1973) 10 Cal. 3d 110; HFH, LTD. v. City of Cerritos et al., Supreme Court of California (L.A. 30382-3, Nov. 12, 1975).
 6. See, Turner v. County of Del Norte, 24 Cal. App. 3d 311, 101 Cal. Rptr. 93 (1972).
 7. 30 N.Y. 2d 359, 285 N.E. 2d 291, 334 N.Y.S. 2d 128 (1972).

Air Zoning

Through the use of stationary and complex source regulation, in combination with a strict policy of no significant deterioration, a state could create a form of "air zoning".¹ Such air zoning would direct future development into already developed areas and prevent its further spread into rural areas. The Clear Air Act could provide the basis for such a plan. Such a plan would envision a regulatory entity determined on the basis of: (1) the effects of meteorological and topographical patterns and photochemical reactions, (2) the location of large pollution sources, and (3) the geographic scale. Such an agency would review all new development and prohibit both point and complex sources which would cause a particular zone to exceed its permissible maximum level of air pollution. This permit would be required in addition to local approval. The regulatory agency would establish an upper constraint based on air pollution factors while leaving local planning and zoning intact.

1. See Air Zoning 4 Eco. L. Q. 781 (1975).

II. FEDERAL CONTROL OF THE WATER AND AIR QUALITY MANAGEMENT PROCESSES

Legal Authority Issues.

Under Section 110 of the Clean Air Act the administrator of EPA is empowered to prepare and publish an implementation plan for a state if: (1) the state fails to submit its own implementation plan; 2) the submitted plan is deficient; or 3) the state fails to properly revise its plan after notification of a change in regulation by the EPA.¹

The EPA revised regulations governing the Section 208 area wide water quality management planning under the Federal Water Pollution Control Act do not include legal sanctions for non-compliance with the planning requirements but rather provide that once a plan has been approved by the regional administrator no discharge permits may be issued or construction grants approved which are in conflict with the plan, an effective control measure if enforced.

Under the Clean Air Act, what is the legal status of regulations prepared by EPA when a state has failed to properly submit or revise an implementation plan? There are two variations of this problem. Under the first, the state has created air pollution agencies and enabled them to exercise sufficient power to effectuate EPA regulations but the agencies have failed to adequately exercise their power. Under this fact pattern EPA would order the exercise of powers which were actually granted by the state legislature. It is very probable that local actions consistent with EPA regulations could be compelled in such a situation.²

The second variation would arise if the state legislature had established air pollution agencies, but had failed to enact sufficient enabling legislation to allow them to effectuate EPA's regulations. The EPA administrator's authority to promulgate land-use restrictions for a particular local agency or to deal with air pollution in an interstate air basin is, to say the least, open to serious question. Some legal scholars support the proposition that the federal government can be a source of power for local governments, even in contradiction of state law, with cases dealing with reservoir construction.³

However, the legislative history of the act does not indicate any intention to depart dramatically from traditional patterns of authority. If Congress did in fact intend to accomplish such a shift, it would still be subject to a constitutional challenge. The challenge would determine if there are any limits on the congressional power to legislate under the commerce clause.⁴ This issue will be particularly important for the complex source and non-degradation regulations promulgated by EPA.

Another issue of authority deals with the police powers that the Air Pollution Control Districts and Water Quality Control Boards in California hold. The California

constitutional doctrine of home rule would be triggered by these agencies making of planning and locational decisions concerning land within municipal areas.⁵ Literally read, the home rule provisions are violated by the creation of regional entities with police powers. However, California courts have not interpreted the home rule provisions literally and have permitted some interference with traditional municipal affairs.

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1. Clean Air Act sec. 110(c) (1970); 42 U.S.C. sec. 1857 c-5(c) 1970.
 2. See generally, Funeberg, Federal-State Interaction Under the Clean Air Amendments of 1970, 14 Boston College L.Rev. 637 (1973).
 3. Id. at 660-67; see generally, Antieau, Municipal Corporation Law sec. 44.24 and sec. 19A.08 (1969).
 4. See Chernow, Eli, Implementing the Clean Air Act in Los Angeles: The Duty to Achieve the Impossible, 4 Eco. L. Q. 537, 554.
 5. The primary home rule provisions are found in Cal. Const. art. XI, sec. 11; art. XIII, sec. 37.

Water Quality Techniques Identified in EPA Guidelines for Section 208 of the FWPCA.

In recently issued final revised regulations governing the Section 208 area wide water quality management planning under the Federal Water Pollution Control Act, the Environmental Protection Agency (EPA) requires the consolidation of Section 208 and 303 planning into a single state-wide process. The goals of the single process are to assure that institutional arrangements and programs are established to achieve water quality standards and goals while taking into account state and local policies and programs for natural resource and land management.

The required level of detail for water quality management plans will vary according to the water quality problems of the respective areas of the state. Intensive planning and management efforts will be required for those areas with complex problems and "minimal planning" for areas where the state certifies no water quality problems exist.¹ Such plans will, however, serve as the basis for controls of point and non-point sources of water pollution, including land use controls.

Although the procedure and timing of the designation process has been changed for both the state planning agency and the area wide agencies, the basic Water Quality Management Plan content requirements have not been drastically altered by the new regulations.

Following is a list of major land use controls and practices that should be considered as possible measures for implementing pollution control in a 208 area.

- Zoning
- Flood plain zoning
- Environmental performance zoning
- Subdivision regulations
- Planned unit development regulations
- Buffer zones
- Conservation and scenic easements
- Density bonuses
- Housing codes
- Building codes
- Construction permits
- Development permits
- Transferable development rights
- Hillside development regulations
- Drainage regulations
- Grading regulations
- Soil erosion and sediment control ordinances
- Solid waste control ordinances
- Septic tank ordinances
- Taxation policies
- Public works policies

- Public investment policies
- Land conservation policies
- Discharge permits

The guidelines furthermore describe detailed planning considerations for establishing alternative sub-plans for controlling point sources of pollution.

Municipal Wastewater Facilities

- Treatment and discharge to receiving waters
- Treatment and reuse
- Land application and utilization (sludge) including development of integrated solid, liquid, and thermal waste facilities and enhancement of recreation and open space opportunities

Flow and Waste Reduction Measures

- Infiltration or inflow reduction by sewer system rehabilitation and repair, and elimination of roof and foundation drains
- Household water conservation measures, such as water-saving appliances and fixtures
- Water and wastewater rates that impose costs proportional to water used and wastewater generated; use of water meters
- Educating public on the value of water resources and the need to reduce water consumption

Sewers

- System configuration and capacity
- Sewer hookup schedules

Combined Sewage and Storm Discharges

- Separation of sewage and storm collection
- Operational control of the existing system (maximum use of system storage)
- Storage at points of system for subsequent treatment
- Direct treatment of overflows
- High level of maintenance including periodic flushing of sewer systems

1. 40 Federal Register 230, November 28, 1975; p. 55342, sec. 130.34 (c) and (d).

Air Quality Management

1. Complex Source Regulations

The final regulations dealing with complex source control did not, as was initially feared, mandate immediate state-wide land use control.¹ Instead, states could choose to delegate the authority for complex source review to local agencies. The final regulations required states to identify within nine months "those areas...which, due to current air quality and/or project growth rate, may have the potential for exceeding the national standard within the next 10 years".² Specifically, the states are required to take into account "not only the increased air pollution arising directly from new commercial, industrial, and residential development, but also that arising from increases in demand for electricity and heat, motor vehicle traffic, and production of solid waste". Periodic review is required to determine whether additional areas should be included on the designated areas list. Therefore, some of the information the states must provide is clearly oriented toward control of a broad range of complex sources.³

The size of sources subject to review has not been set by the final regulations. Instead, it is left to local determination. Indirect sources include, but are not limited to:

- Highways and roads
- Parking facilities
- Retail, commercial and industrial facilities
- Recreation, amusement, sports and entertainment facilities
- Airports
- Office and government buildings
- Apartment and condominium buildings
- Education facilities

The basic focus of the 1973 regulations was preconstruction review of a new facility which will have an associated parking area of the requisite number of parking spaces. In 1974, the final substitute regulations⁴ retained the parking lot size criteria but abandoned the designated area concept; it uses Standard Metropolitan Statistical Areas (SMSAs) as boundaries for the application of stricter standards. The following outline provides some concepts of applicability:

(1) Parking areas:

(a) Within a SMSA

Capacity of 1000 cars or more (any modification of 500 cars or more)
associated parking area - a parking facility owned and/or operated in conjunction with an indirect source.

Notes: (1) Factors including induced vehicle trips and traffic flow characteristics, will be used to make an estimate of the additional emissions produced, but only after they have met the parking lot size.
 (2) Only carbon monoxide is analyzed.

- (b) Outside an SMSA
 Capacity of 2000 cars or more (associated parking areas)(modification of 1000 cars).

(2) Airports

- (a) Inside or outside SMSA where construction or modification will result in expected traffic volume within 10 years of either 50,000 or more operations per year by regularly scheduled carriers or use by 1,600,000 or more passengers per year. (Only very large airports subject to review.)

(3) Highways

- (a) Only inside SMSA.
- (b) Only highway sections with anticipated traffic volume of 50,000 vehicles within 10 years of construction or modification to existing highways which will add 25,000 vehicles per day to present volume within next 10 years will be subject to review for effects on nitrous oxides and photochemical oxidants. Carbon monoxide review is required for 20,000 vehicles and 10,000 vehicles per day, respectively. (Only relatively large projects subject to review.)

Under these regulations complex sources will be reviewed on an individual basis without full consideration of their area-wide effects on growth and air quality. EPA is apparently relying on State Air Quality Maintenance Plans to supply the additional measures to assure air quality maintenance.

2. Air Quality Maintenance Plans

EPA has developed a set of guidelines for identification and designation of Air Quality Maintenance Areas (AQMA's).⁵ States will be expected to develop plans which will provide for air quality maintenance through 1985 in the identified AQMA's. Some of the provisions of such plans will be:

- Revision of local land use and transportation plans where they are presently incompatible with air quality maintenance
- Emission allocations
- Transportation controls

- Fuel and energy conservation measures
- Coordination of air quality maintenance with environmental planning

The plans are intended to provide all the necessary steps to maintain air quality at the level required by the Act. If the states do not formulate sufficient control strategies, EPA will need to promulgate and enforce its own substitute control strategies.

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1. Maintenance of National Ambient Air Quality, 40 C.F.R., secs. 51.1 et seq.
 2. Final State Plan Regulations, 40 C.F.R., sec. 51.12(e) (1973).
 3. See Control of Complex Emissions Sources - A Step Toward Land Use Planning, 4 Eco. L. Q. 693, 704 (1975).
 4. Final Substitute Regulations, sec. 52.22(b)(2)(i), 39 Fed. Reg. 7277 (1974).
 5. EPA, Guidelines for Designation of Air Quality Maintenance Areas, OAQPS 1.2-016 (1974).

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